



**AD-230      AD-235**  
**Coin Service Manual**  
Phase 5 Microprocessor Controls  
(for models mfd. as of February 1992)

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**American Dryer Corporation**  
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Fall River MA 02720-4781  
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E-mail: techsupport@amdry.com

## Retain This Manual In A Safe Place For Future Reference

American Dryer Corporation products embody advanced concepts in engineering, design, and safety. If this product is properly maintained, it will provide many years of safe, efficient, and trouble-free operation.

*ONLY qualified technicians should service this equipment.*

**OBSERVE ALL SAFETY PRECAUTIONS** displayed on the equipment or specified in the installation/operator's manual included with the dryer.

The following **"FOR YOUR SAFETY"** caution must be posted near the dryer in a prominent location.

### FOR YOUR SAFETY

Do not store or use gasoline or other flammable vapors or liquids in the vicinity of this or any other appliance.

### POUR VOTRE SÉCURITÉ

Ne pas entreposer ni utiliser d'essence ni d'autres vapeurs ou liquides inflammables dans le voisinage de cet appareil ou de tout autre appareil.

We have tried to make this manual as complete as possible and hope you will find it useful. ADC reserves the right to make changes from time to time, without notice or obligation, in prices, specifications, colors, and material, and to change or discontinue models.

## Important

For your convenience, log the following information:

DATE OF PURCHASE \_\_\_\_\_ MODEL NO. \_\_\_\_\_

DISTRIBUTORS NAME \_\_\_\_\_

Serial Number(s) \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

Replacement parts can be obtained from your distributor or the ADC factory. When ordering replacement parts from the factory, you can FAX your order to ADC at (508) 678-9447 or telephone your orders directly to the ADC Parts Department at (508) 678-9000. Please specify the dryer **model number** and **serial number** in addition to the **description** and **part number**, so that your order is processed accurately and promptly.

### **"IMPORTANT NOTE TO PURCHASER"**

Information must be obtained from your local gas supplier on the instructions to be followed if the user smells gas. These instructions must be posted in a prominent location near the dryer.

## **IMPORTANT**

**YOU MUST DISCONNECT and LOCKOUT THE ELECTRIC SUPPLY and THE GAS SUPPLY or THE STEAM SUPPLY BEFORE ANY COVERS or GUARDS ARE REMOVED FROM THE MACHINE TO ALLOW ACCESS FOR CLEANING, ADJUSTING, INSTALLATION, or TESTING OF ANY EQUIPMENT per OSHA (Occupational Safety and Health Administration) STANDARDS.**

## **FOR YOUR SAFETY**

**DO NOT STORE OR USE GASOLINE OR OTHER FLAMMABLE VAPOR AND LIQUIDS IN THE VICINITY OF THIS OR ANY OTHER APPLIANCE.**

**DO NOT DRY MOP HEADS IN THE DRYER.**

**DO NOT USE DRYER IN THE PRESENCE OF DRY CLEANING FUMES.**

## **CAUTION**

**DRYERS SHOULD NEVER BE LEFT UNATTENDED WHILE IN OPERATION.**

## **WARNING**

**CHILDREN SHOULD NOT BE ALLOWED TO PLAY ON OR NEAR THE DRYERS.**

**CHILDREN SHOULD BE SUPERVISED IF NEAR DRYER(S) IN OPERATION.**

## **WARNING**

**The dryer must never be operated with any of the back guards, outer tops, or service panels removed. PERSONAL INJURY or FIRE COULD RESULT.**

## **WARNING**

**DRYER MUST NEVER BE OPERATED WITHOUT THE LINT FILTER OR SCREEN IN PLACE, EVEN IF AN EXTERNAL LINT COLLECTION SYSTEM IS USED.**

## **IMPORTANT**

**PLEASE OBSERVE ALL SAFETY PRECAUTIONS displayed on the equipment and specified in the installation and operator's manual included with the dryer.**

Dryers **must not** be installed or stored in an area where it will be exposed to water or weather.

The wiring diagram for the dryer is located in the front electrical control box area.

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# SECTION I

## IMPORTANT INFORMATION

### A. SAFETY PRECAUTIONS

1. Do not store gasoline or other flammable vapors and liquids in the vicinity of this or any appliance.
2. Purchaser / user should consult the local gas supplier for proper instructions to be followed in the event the user smells gas. The instructions should be posted in a prominent location.
3. Dryer must be exhausted to the outdoors.
4. Although the American Dryer is a very versatile machine there are some articles that, due to fabric composition or cleaning method, should not be dried in it.

**WARNING:** Dry only water washed fabrics. Do not dry articles spotted or washed in dry cleaning solvents, a combustible detergent or "all purpose cleaners." Fire or explosion could result.

**WARNING:** Do not dry rags or articles coated with gasoline, kerosene, paint, wax, oil, or grease. Fire or explosion could result.

**WARNING:** Do not dry mop heads. Contamination by wax or flammable solvents will create a fire hazard.

**WARNING:** Do not use heat for drying articles that contain plastic, foam or sponge rubber, or similarly textured like materials. Drying in a heated tumbler may cause damage to plastics or rubber and also may be a fire hazard.

5. A program should be established for the inspection and cleaning of the lint in the burner area and exhaust duct work. The frequency of inspection and cleaning can best be determined from experience at each location.

**WARNING:** The collection of lint in the burner / oven area and exhaust duct work can create a potential fire hazard.

6. For personal safety, the dryer must be electrically grounded in accordance with local codes and or the national electric code ANSI/NFPA NO. 70 (latest edition).
7. Under no circumstances should the dryer door switch or heat circuit safety devices ever be disabled.
8. Read and follow all caution and direction labels attached to dryer.

**WARNING:** Children should not be allowed to play on or in the dryers. Children should be supervised if near dryers in operation.

# SECTION II

## MAINTENANCE

### A. CLEANING

A program or schedule should be established for periodic inspection, cleaning and removal of lint from various areas of the dryer, as well as, throughout the duct work system. The frequency of cleaning can best be determined from experience at each location. Maximum operating efficiency is dependent upon proper air circulation. The accumulation of lint can restrict this air flow. If the guidelines in this section are met, your American Dryer will provide many years of efficient, trouble free, and most importantly, safe operation.

**WARNING:** Lint from most fabrics is highly combustible. The accumulation of lint can create a potential fire hazard.

#### SUGGESTED INTERVAL

#### FUNCTION

DAILY	Clean lint from lint screen. Inspect lint screen and replace if torn.
90 DAYS	Remove lint accumulation from lint chamber thermostats and sensors.

**WARNING:** To avoid the hazard of electrical shock, discontinue electrical supply to dryer.

90 DAYS	Remove lint from the motor air vents and surrounding area.
90 DAYS	Inspect and tighten all set screws (ie; pulleys, idler bearings, tumbler bearings).

**IMPORTANT:** Lint accumulation will restrict internal motor air flow, causing overheating and irreparable damage. Motor failure due to lint accumulation will void the manufacturer's warranty

120 DAYS	<p>On gas and electric models remove lint from gas burner area with a dusting brush or vacuum cleaner attachment.</p> <p>On steam dryers, clean the coil. Proper cleaning of steam coils is necessary to prevent lint build-up between the fins. When cleaning the coil, be extremely careful not to bend the aluminum fins, which will also reduce airflow. If the fins are bent, straighten them by using a comb. Fin combs are available from local air conditioning supply houses. Regular cleaning will prevent lint build-up and blockage of the coil.</p>
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6 MONTHS

Inspect and remove lint accumulation in the customer-furnished exhaust duct work system. Inspect exhaust back draft dampers to insure that they are not binding. Inspect and remove all lint accumulation from in and around control box area including coin acceptors. Clean lint accumulation from around tumbler wrapper area.

**IMPORTANT:** The accumulation of lint in the exhaust duct work can create a potential fire hazard

AS REQUIRED

In cleaning and care of the cabinet, avoid using harsh abrasives. A product intended for the cleaning of appliances is recommended.

## **B. ADJUSTMENTS**

### **SUGGESTED INTERVAL**

### **FUNCTION**

6 MONTHS

Motor and drive belts should be examined. Cracked or seriously frayed belts should be replaced. Tighten loose belts when necessary, and check belt alignment.

6 MONTHS

Complete operational check of controls and valves.

6 MONTHS

Complete operational check of all safety devices (door switches, sail switch, burner and lint chamber thermostats.)

12 MONTHS

Inspect bolts, nuts, screws non permanent gas connections, (unions orifices, etc.) electrical terminals, and grounding connections.

## **C. LUBRICATION**

The new bearings, idler bearings and tumbler bearing are sealed, lubrication is not necessary.

# SECTION III

## INSTALLATION REQUIREMENTS

Installation should be performed by competent technicians in accordance with local and state codes. In the absence of these codes, installation must conform to applicable American & National Standards.

ANSI Z223.1 (LATEST EDITION) NATIONAL FUEL GAS CODE

ANSI/NFPA NO. 70 (LATEST EDITION) NATIONAL ELECTRIC CODES

### A. ENCLOSURE AIR SUPPLY AND EXHAUST REQUIREMENTS

**NOTE:** The following information is very brief and general. For a detailed description refer to the installation booklet for coin machines.

Bulkheads and partitions around the dryer should be made of non-combustible materials. Allowances should be made for the opening and closing of the control door and lint door. Also, allowances should be made in the rear for ease of maintenance. (refer to installation manual for recommended distances and minimum allowances required.)

When the dryer is operating, it draws in room air, heats it, passes this air through the tumbler, and exhausts it out the building. Therefore, the room air must be continually replenished from the outdoors. If the make up air is inadequate, drying time and drying efficiency will be adversely affected. Also, on gas machines Ignition problems and sail switch "fluttering" problems may result and on a electric machine, premature electric element failure may result. Air supply must be given careful consideration to insure proper performance of each dryer.

**IMPORTANT:** Make up air must be provided from a source free of dry cleaning fumes. Make up air that is contaminated by dry cleaning fumes will result in irreparable damage to motors and other dryer components.

Exhaust duct work should be designed and installed by a competent technician. Improperly sized duct work will create excessive back pressure, which will result in slow drying, increased use of energy, and shut down of the burner by the air flow (sail) switch. Refer to Installation Manual for more details.

**CAUTION:** Improperly sized, installed or maintained (cleaned) exhaust duct work creates a potential fire hazard.

## **B. ELECTRICAL AND GAS REQUIREMENTS**

It is your responsibility to have all electrical connections made by a properly licensed and competent electrician to assure that the electrical installation is adequate and conforms with local and state regulations or codes. In the absence of such codes, all electrical connections, material, and workmanship must conform to the applicable requirements of the National Electric Code ANSI/NFPA NO. 79-(latest edition).

**IMPORTANT:** Failure to comply with these codes or ordinances, and or the requirements stipulated in this manual, can result in personal injury or component failure.

The dryer installation must meet the American National Standard, National Fuel Gas Code ANSI Z223.1 (latest edition), as well as, local codes and ordinances and must be done by a qualified technician.

**NOTE:** Undersized gas piping will result in ignition problems and slow drying and can create a safety hazard.

The dryer must be connected to type of gas (natural or L.P.) indicated on the dryer data label. If this information does not agree with the type of gas available, contact the distributor who sold the dryer or contact the factory.

The gas input ratings shown on the dryer data label are for elevations up to 2,000 feet, unless elevation requirements of over 2,000 feet were specified at the time the dryer order was placed with the factory. The adjustment for dryers in the field for elevations over 2,000 feet are made by changing the burner orifices. If this adjustment is necessary, contact the distributor's who sold the dryer or contact the factory.

**NOTE:** Any burner changes must be made by a qualified technician.

## **C. OPERATIONAL SERVICE CHECK PROCEDURE**

After performing any service or maintenance function, an operational check should be performed to insure that all components are performing properly.

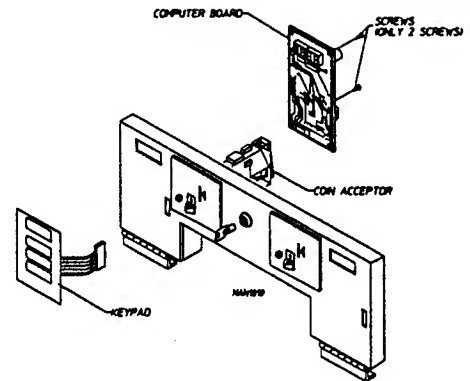
1. Make a complete operational check of all the operating controls to insure that the timing is correct, temperature selection switches are functioning properly.
2. Make a complete operational check of all safety related circuits, door switch(es), hi-limit thermostat, sail switch, cycling thermostats, etc.

# SECTION IV

## DESCRIPTION OF PARTS

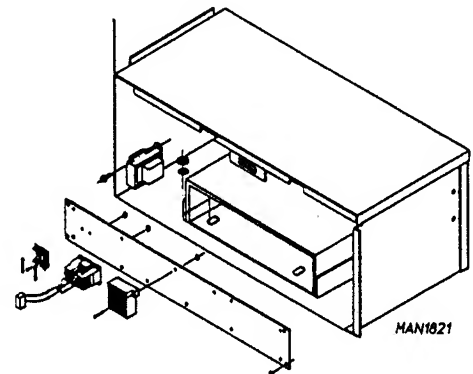
### A. Control Panel (Microprocessor)

Opening the control door will reveal the control panel assembly. Opening the control panel will allow access to the major components which include the coin acceptors, computer board, and keypad. The coin acceptor sends the signal to the computer that a coin has been inserted. The keypad inputs to the computer what temperature has been selected. The computer controls the entire operation of the machine. It accepts inputs and send outputs to various parts throughout the machine.



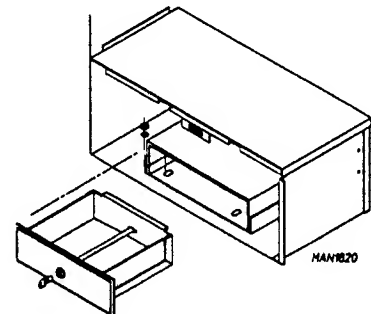
### B. Control Box

The control box is made up of motor contactor fuse(s), 24vac transformer, and 30 position terminal block. The fuse(s) protect the incoming voltage from shorting. The transformer is used to break the incoming voltage to 24vac for the control voltage of the machine. The 30 position terminal block is used to combine the various common wires throughout the machine for simplicity and ease of service. The motor contactor is used to drive the motor when the computer applies voltage to the contactors coil.



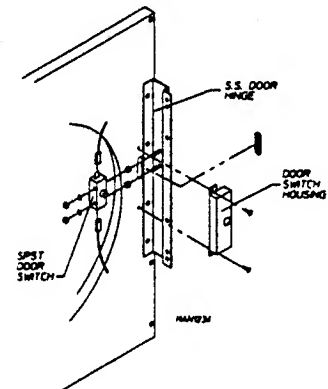
### C. Coin Box and Vault

The coin box and vault are located under the control panel. When a coin passes the coin sensor, it drops into the coin vault. Opening the control door reveals the coin box. To remove the coins turn the key and pull out.



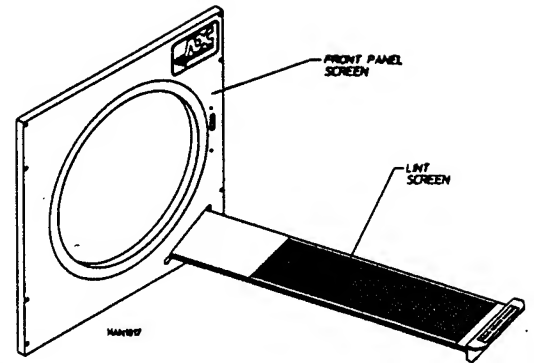
### D. Main Door Switch

The main door switch is located behind the main door on the right hand side. When the main door is opened, the switch will also open preventing the dryer from operating. The main door switch is a safety device and should never be disabled.



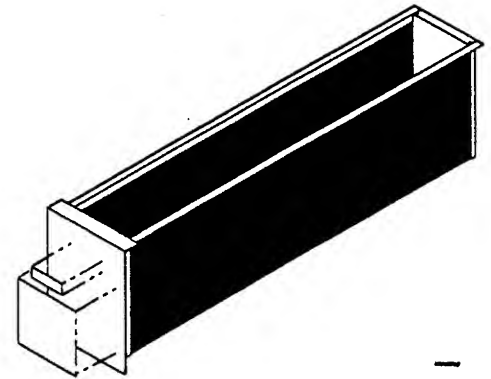
## **E. Lint Screen (AD-230)**

The lint screen is located in the bottom portion of the front panel. The lint screen prevents lint from entering the exhaust system. The lint screen should be kept clean at all times. Lint screens with tears or holes should be replaced immediately. This type lint screen should be clean after every load.



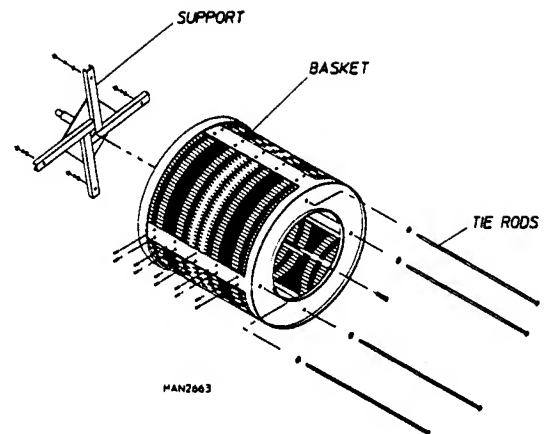
## **F. Lint Drawer (AD-235)**

The lint drawer is located on the left side behind the control door for the top pocket and for the bottom pocket it is, behind the lint door. The drawer purpose is to catch the lint so it will not enter the exhaust system.



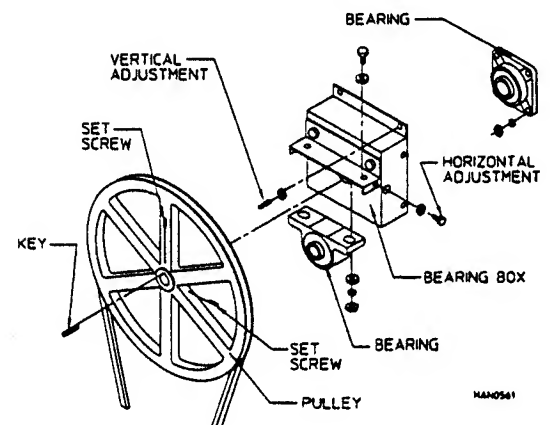
## **G. Tumbler**

The tumbler consists of three ribs and a perforated basket along with a front and back which are riveted together as an assembly. The tumbler also consists of tie rods which attach the tumbler to the drive system in the rear. The felt collar helps to keep lint from accumulating behind the basket.



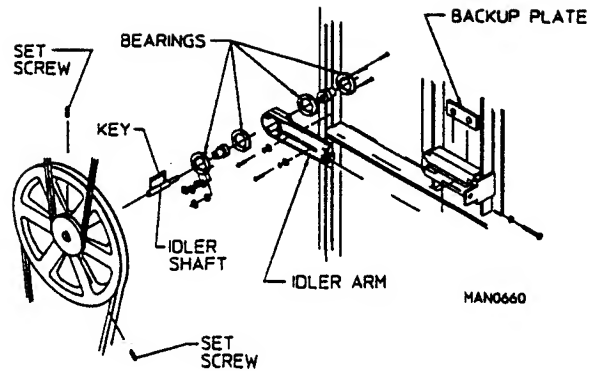
## **H. Tumbler Bearing and Pulley Arrangement**

The tumbler bearing and the pulley arrangement is located (viewing from the rear of the dryer) approximately at the upper center of the dryer. The arrangement consists of a pulley, bearing box, and bearings which serve to adjust, drive, and support the tumbler. The bearing box has various nuts and bolts that are made to adjust the basket vertically and horizontally.



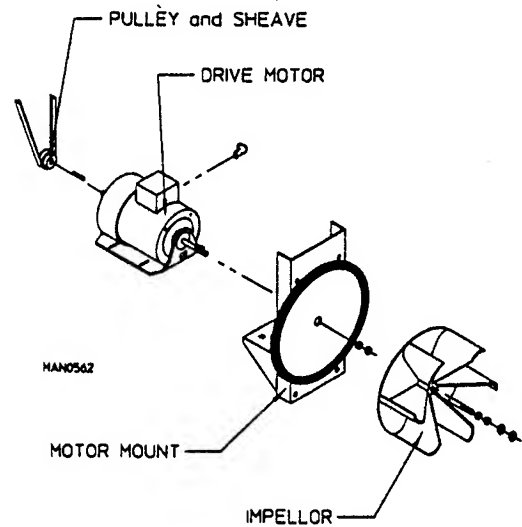
## **I. Idler Bearing**

(Viewing from the rear of the dryer) The idler assembly is located approximately on the lower left hand side of the dryer. The idler assembly consists of one (1) compound pulley. The idler's main purpose is to reduce the speed and increase torque provided to the tumbler. Also, the idler assembly belt tension can be adjusted. The AD-230 and AD-235 requires a 9" x 2 1/2" pulley.



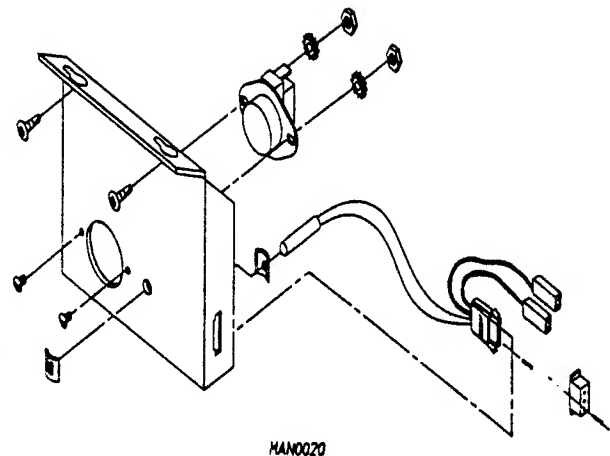
## **J. Drive Motor and Impellor**

The drive motor is located on the back, approximately lower left hand side of the dryer for the top and same position, for the bottom pocket. It sits on an adjustable base so the motor can easily be adjusted to the left or right, up or down. The threaded shaft of the motor is connected to the impellor, a backward curved paddlewheel. The impellor provides air flow in the dryer. It creates a vacuum which pulls the hot air from the burner into the basket through the lint screen and out the exhaust.



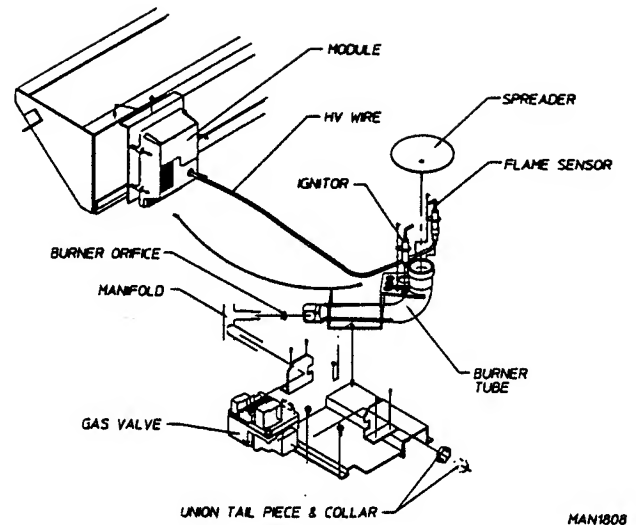
## **K. Temperature Sensors**

The temperature sensor is used as a transducer that converts heat into microamps. The computer board then uses these microamps to calculate the temperature. This sensor is located below the lint screen for the AD-230 and above the lint drawer on the AD-235.



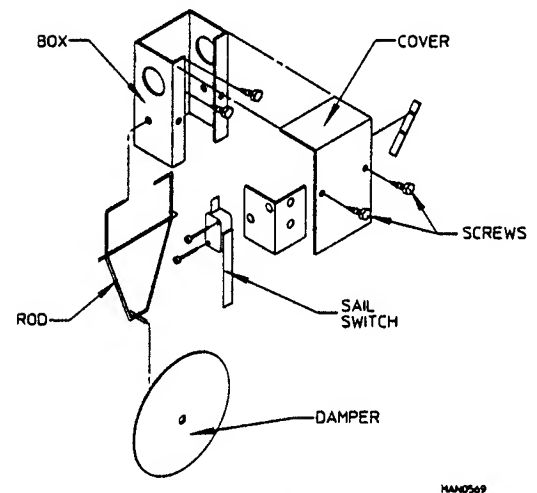
## L. Gas Burner

The gas burner assembly consists of the burner tube, orifice (the orifice has a hole in it to allow gas to flow through. The hole size varies with different elevations, and different BTU's), gas valve (which can be set up for natural gas or L.P.), spark ignitor, and probe assembly. Gas burners will vary from model to model in size, shape, and relative location.



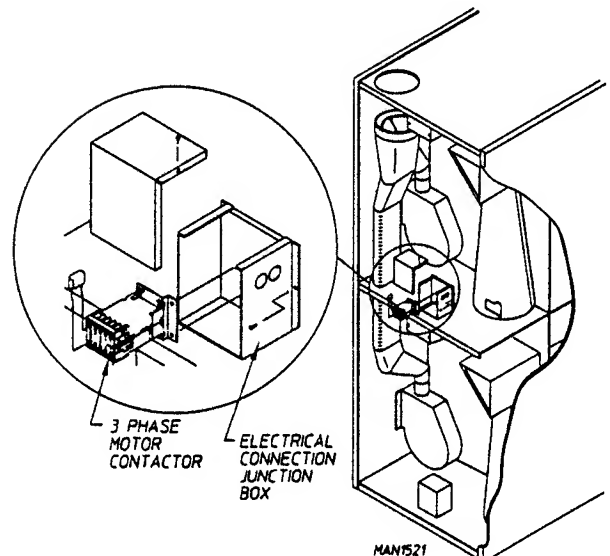
## M. Sail Switch

The sail switch consists of a round plate on a lever arm which acts like an actuator for a micro-switch. When the blower motor comes on, it draws air from the burner. This creates a negative pressure inside the basket area, and this negative pressure pulls in the round damper which activates the sail switch. If there is improper air flow, the damper will not pull in, preventing the burner from coming on. Improper air flow can be caused by improperly designed exhaust ducting, where the duct run is too long or has too many sharp bends in it. It can also be caused by a lack of make up air.



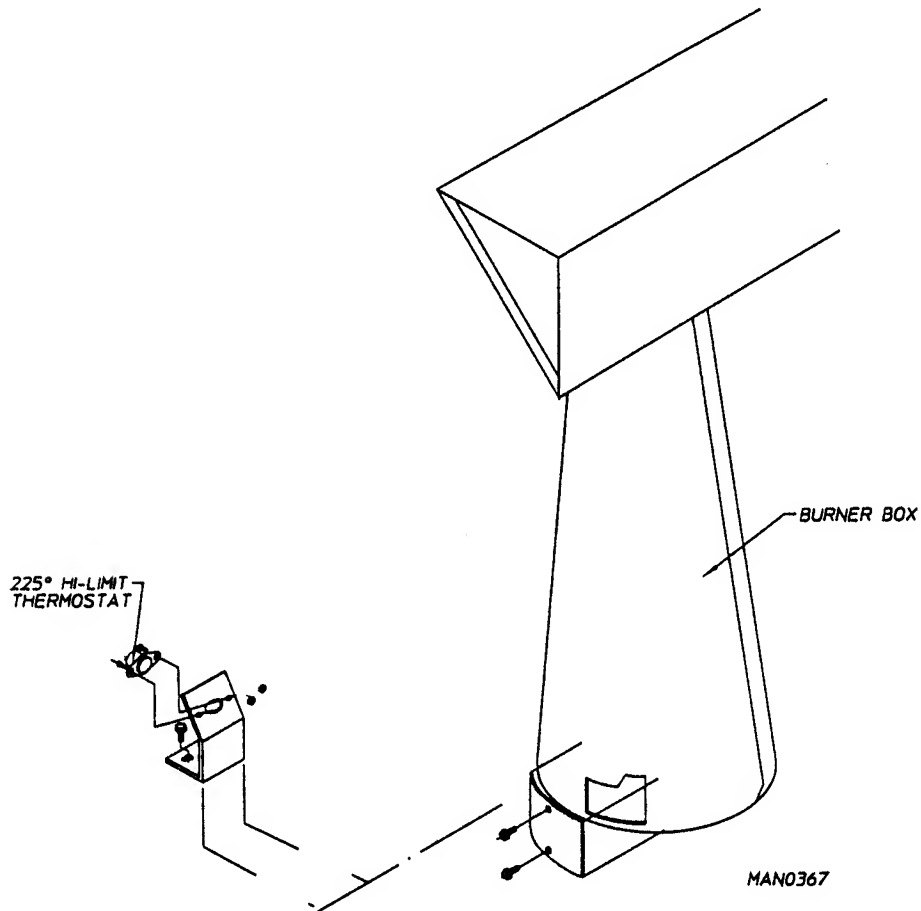
## N. Non-Reversing Contactor (3Ø Motor)

The non-reversing contactor is used on 3 phase non-reversing dryers and is located in the junction box in the rear of dryer. It is through the contactor that the voltage inputs are fed. Its purpose is to transfer the higher voltage to the motor when the contactor coil voltage has been achieved.



## O. Hi-Limit Thermostat

The burner hi-limit thermostat is another safety device that we use on the dryer. The hi-limit is located in the burner area. The hi-limit switch cuts off the heat if the temperature exceeds 225° for the AD-230 and AD-235. Under normal conditions the only way this device would shut off the heat is when the air flow changes to the extent of causing the intense heat from the burner to trip the thermostat.





# SECTION V

## SERVICE

All electrical/mechanical service or repairs should be made with the electrical power to the dryer disconnected (power off).

**WARNING:** Personal injury could result.

The information provided in this section should not be misconstrued as a device for use by untrained persons making repairs. Service work should be performed by competent technicians in accordance with local state and federal codes. When contacting the factory for assistance, always have the dryer model and serial numbers available.

**CAUTION:** Observe all safety precautions displayed on the dryer or specified in this manual before and while making repairs.

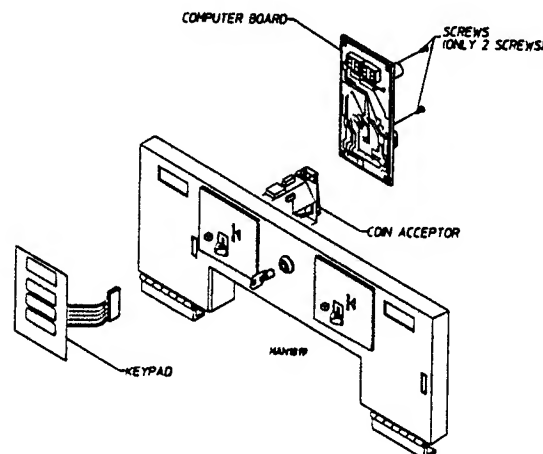
**IMPORTANT:** The information provided will help isolate the most probable component(s) associated with the difficulty described. The experienced technician realizes, however, that a loose connection or broken/shorted wire may be at fault where electrical components are concerned...not necessarily the suspected component itself. Electrical parts should always be checked for failure before being returned to the factory.

**IMPORTANT:** YOU MUST DISCONNECT and LOCKOUT THE ELECTRIC SUPPLY and THE GAS SUPPLY BEFORE ANY COVERS or GUARDS ARE REMOVED FROM INSTALLATION, or TESTING OF ANY EQUIPMENT PER OSHA (Occupational Safety and Health Administration) STANDARDS.

### A. Controls (Computer)

#### TO REPLACE COMPUTER

1. Disconnect power to dryer.
2. Open control door (2 locks AD-230, 1 lock AD-235)
3. Open Computer Panel  
(1 Lock AD-230, 1 Screw AD-235)
4. Disconnect main power harness from the rear of the computer by squeezing the top locking tab and pulling connector straight back.
5. Disconnect the green ground wire from the computer.



6. Disconnect the keypad ribbon from the computer.
7. Remove the two (2) screws securing the computer to the control panel and remove computer from panel, by pulling upwards on the corners.
8. Install new computer by reversing this procedure.
9. Be sure to check or reset programs.

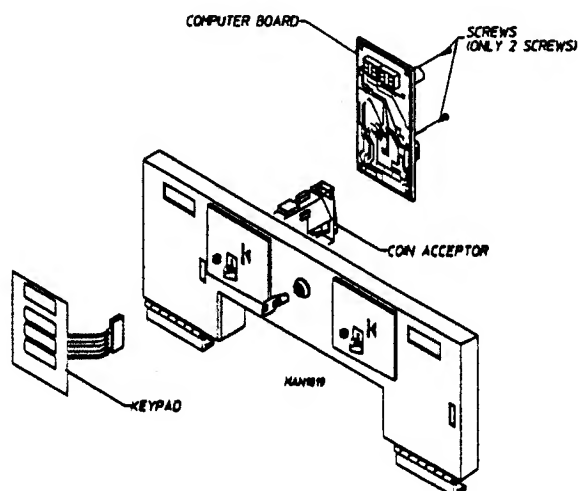
**NOTE:** Use caution when handling the MP Controller. It can be easily damaged by static electricity.

### **TO REPLACE KEYPAD**

1. Discontinue power to dryer.
2. Open control door and open control panel, unplug keypad ribbon from computer board.
3. Peel the keypad from the front of the control panel taking care to avoid scratching the panel.
4. Clean any adhesive residue from the panel.
5. Peel off paper backing from new keypad.
6. Align the display window on the keypad with the cutout in the control panel and press in place.
7. Connect keypad ribbon to the board and reconnect power to the dryer.
8. Test for operation by pressing each temperature selection.

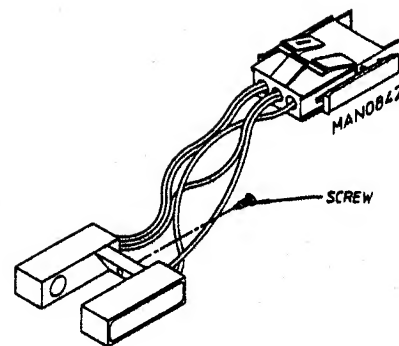
### **TO REPLACE COIN ACCEPTOR**

1. Discontinue power to dryer.
2. Open control door (2 locks AD-230, 1 lock AD-235)
3. Swing control panel open.
4. Unplug optic switch harness connector.
5. Remove one (1) screw holding acceptor in place.
6. Pull coin acceptor out gently.
7. Reverse procedure for installing new acceptor.



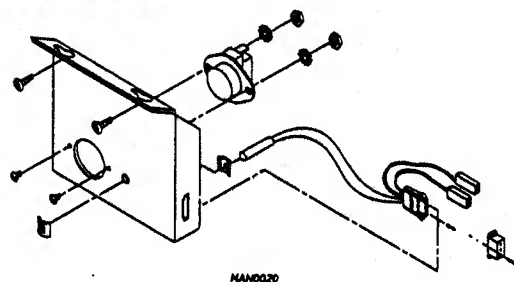
## **TO REMOVE OPTIC SWITCH**

1. Disconnect power to dryer
2. Open control door.
3. Open control panel
4. Unplug optic switch connector.
5. Remove screw and washer holding optic switch to the coin acceptor and pull switch away.
6. Reverse procedure for installing new optic switch.



## **TO REPLACE COMPUTER TEMPERATURE SENSOR PROBE**

1. Discontinue power to dryer.
2. Open control door.
3. Remove M.P. sensor bracket assembly from the dryer.
  - A. Disconnect sensor bracket harness connector
  - B. Loosen the two (2) phillips head screws securing the bracket assembly to the dryer and remove the bracket from the dryer.



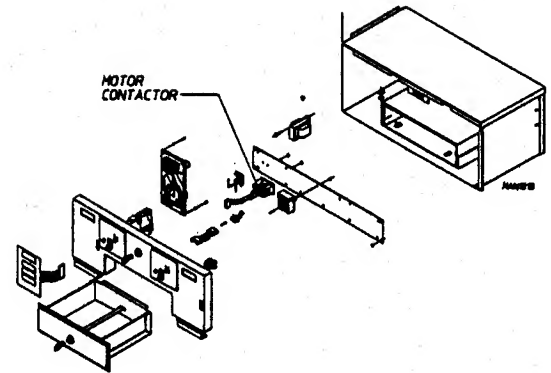
**NOTE:** Do not remove screws

4. Disassemble sensor probe from bracket assembly by removing the top push-on fastener securing the probe to the bracket. Use a small screwdriver to slowly pry the fasteners off.
5. Disconnect the two (2) orange wires from the high heat (225 degrees) temperature thermostat. Remove modular bracket connector, wires, and probe from bracket assembly.
6. Install new sensor probe assembly (p/n: 880251) by reversing the procedure.
7. Re-establish power to dryer.

**NOTE:** If when power is reestablished the computer display reads "dsfl," check for a loose connection on the wiring.

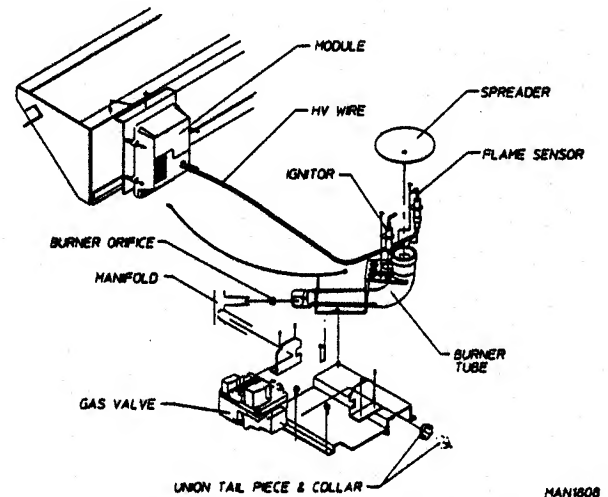
## **TO REPLACE MOTOR CONTACTOR 2-POLE, 24VAC**

1. Discontinue power to dryer.
2. Open control door.
3. Open control panel.
3. Remove both screws securing motor contactor to the electrical panel.
4. Remove all wires from contactor (Note: make sure each wire is marked with location removed from).
5. Install new contactor in reverse procedure
6. Re-establish power to dryer.



## **TO REPLACE GAS VALVE**

1. Discontinue power to dryer
2. Close shut-off valve on right side of gas valve (black lever). Remove the two wires on top of the gas valve.
3. Break & loosen union nut between union shut-off and gas valve.
4. Remove the four (4) screws holding the two pipe brackets on each side of the gas valve.
5. Remove gas valve and manifold (still attached) from dryer.
6. Remove the single port manifold from the output side of the gas valve.
7. Remove the union tail piece and nut from the input of valve (a 1/2" Allen wrench is required)
8. Reverse procedure for installing new valve.



**IMPORTANT:** Pipe dope must be applied to manifold before installing it into new valve.

## **REPLACE UP-SHOT BURNER TUBE ASSEMBLY** (see Illustration below)

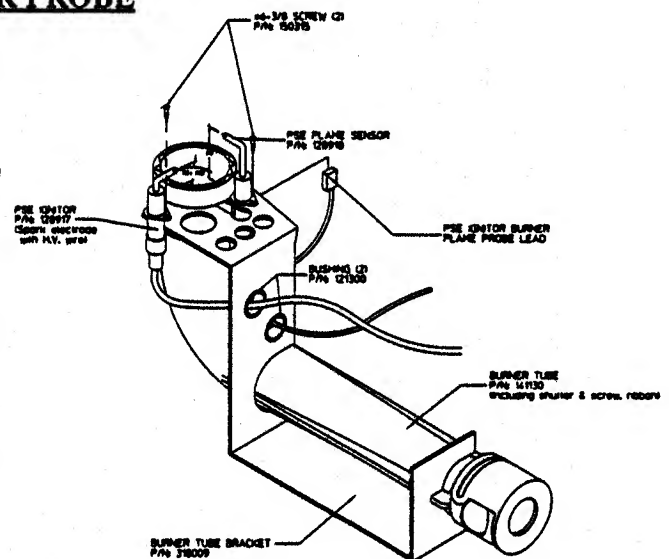
1. Discontinue power to dryer
2. Remove hex nut and star washer from the burner bracket this mounts the burner tube bracket to the gas valve plate.
3. Lift burner tube and bracket up over the weld stud that had the # 2 hex nut and star washer on it in step # 2
4. Disconnect the high voltage wire and the flame sensor wire from the D.S.I. module.
5. Re-assemble new up-shot burner tube assembly (p/n: 880741) in reverse procedure.

**IMPORTANT:** Do not wrap the high voltage wire and flame probe wires together, improper operation may result. They may run alongside each other.

**IMPORTANT:** Make sure the gap from the ignitor to the top of the burner tube is  $1/8" \pm 1/32"$ .

## **TO REPLACE FLAME SENSOR OR IGNITOR PROBE**

1. Discontinue power to dryer.
2. Refer to "Replace up-shot burner tube assembly" steps 2 and 3.
3. To remove either flame sensor or ignitor probe one screw holds them to the burner tube bracket.
4. If replacing flame sensor simply remove the screw and disconnect the connector on the flame sensor, remove it.
5. If replacing ignitor probe, remove screw, disconnect high voltage wire from D.S.I. module and remove the probe and high voltage wire from the bracket.
6. Replace new item(s) in reverse procedure.



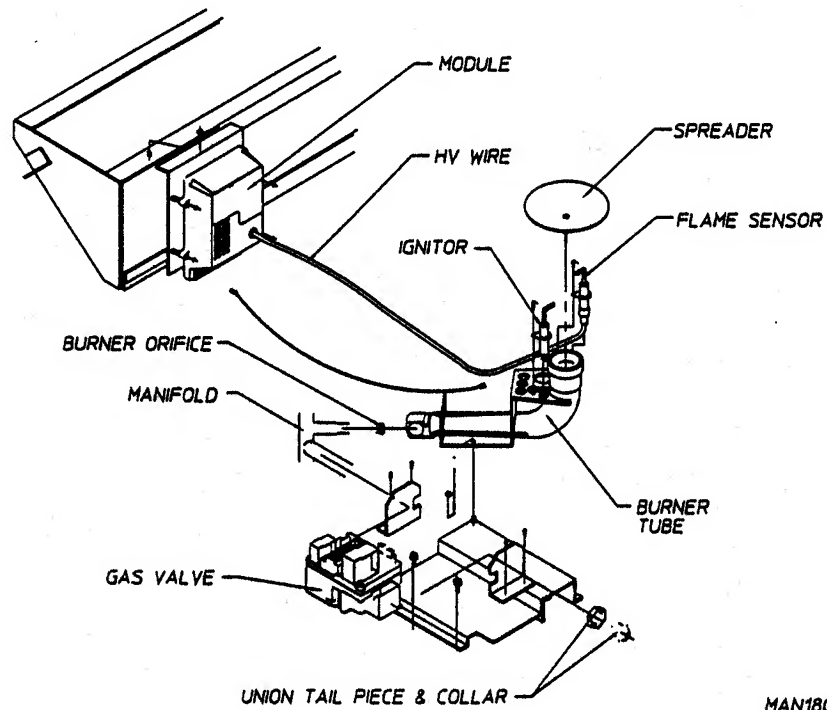
**PSE IGNITOR UP-SHOT BURNER KIT**  
P/N 880741

**IMPORTANT:** Do not wrap the high voltage wire and flame probe wires together, improper operation may result. They may run alongside each other.

**IMPORTANT:** Make sure the gap from the ignitor to the top of the burner tube is  $1/8" \pm 1/32"$ .

## **B. BURNER CONTROLS (Gas)**

The illustration below shows you the gas valve assembly and the gas chamber.



MAN1808

## **TO REPLACE MAIN BURNER ORIFICE**

1. Refer to "TO REPLACE GAS VALVE" and follow steps one through five.
2. Unscrew main burner orifice and replace.

**NOTE:** Use extreme care when removing and replacing orifice. The orifice is made of brass is easily damaged.

3. Reverse the removal procedure for re-installing.

**WARNING:** Test all connections for leaks by brushing on a soapy water solution. "never test for leaks with flame."

**NOTE:** The orifice for AD-230 and AD-235 are the same natural gas. # 20 (p/n: 140828). L.P. gas # 41 (p/n: 140811)

## **TO TEST AND ADJUST GAS (WATER COLUMN) PRESSURE**

There are two (2) types of devices commonly used to measure water column pressure. They are spring/mechanical type gauges and manometers. The spring/mechanical type gauge is not recommended because it is easily damaged and not always accurate. A manometer is simply a glass or transparent plastic tube with a scale in inches, which when filled with water and pressure is applied, the water in the tubes rises, showing the exact water column pressure.

**NOTE:** Manometers are available from the factory by ordering part number 122804.

1. Test gas water column (w.c) pressure.

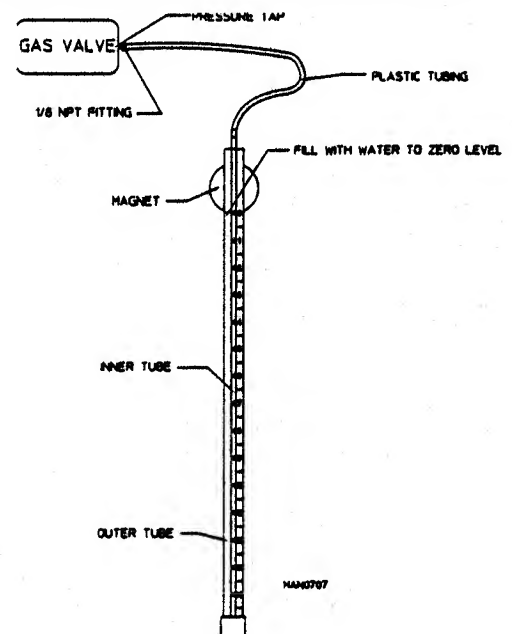
A. Connect water column test gauge connection to gas valve pressure tap (1/8 NPT). This pressure tap is located on the outlet (downstream) side of the valves.

B. Start the dryer. With burner on, the correct water column reading in inches would be:

NATURAL GAS: 3.5-4 INCHES W.C.

L.P. GAS: 10.5-11 INCHES W.C.

2. To adjust water column pressure: For natural gas models remove vent cap. Turn the slotted adjustment screw located on top of the valve next to the terminals. Turn clockwise to increase manifold pressure and counterclockwise to decrease for L.P. gas models there is no regulator on valve



**NOTE:** If correct w.c. pressure cannot be achieved, problems may be due to an undersized gas supply line, a faulty or underrated gas meter, etc.

### **TO CONVERT FROM NATURAL TO L.P. GAS**

1. Disconnect electrical power to dryer.
2. Close all shut-off valves in dryer gas supply line.
3. Disconnect gas valve wiring.

**NOTE:** Identify location of each wire for correct re-installation.

4. Break union connection (nut) between union shut off and gas valve.
5. Loosen and remove screws (4) from pipe brackets holding the gas valve/manifold assembly to the gas valve plate.
6. Remove gas valve/manifold assembly from dryer.
7. Unscrew main burner orifice and replace with L.P. orifices supplied.

**NOTE:** Use extreme care when removing and replacing orifices. These orifices are made of brass which are easily damaged.

8. To convert gas valve for use with L.P. gas, refer to instructions included in kit envelope (#f92-0737) supplied.
9. Reverse procedure for installing valve manifold assembly to dryer.

**IMPORTANT:** External regulation of a consistent gas pressure of between 10.5 and 11.0 inches water column must be provided.

10. Open all shut off valves and test for leaks.

**IMPORTANT:** Do not test for leaks with an open flame. Use soapy water solution or product intended for that purpose.

11. Operate dryer through one complete cycle to insure proper operation.

**IMPORTANT:** Conversion should be performed by competent technicians in accordance with local and state codes. Improper assembly or adjustment can cause hazardous condition.

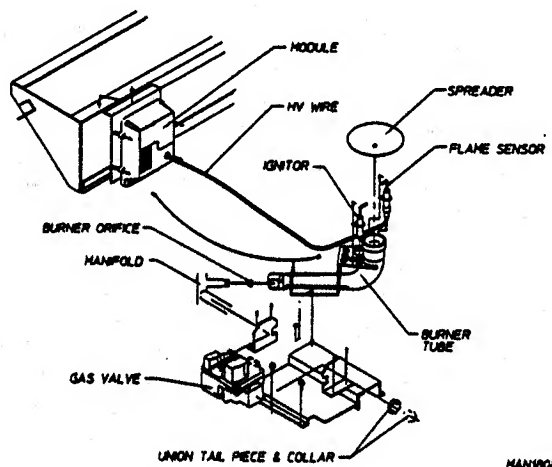


**NOTE:** There is no regulator provided in an L.P. dryer. The water column pressure must be regulated at the source (L.P. tank), or an external regulator must be added to each dryer.

12. Call American Dryer Corp. for L.P. conversion kits or the proper orifices for natural or L.P. gas.

### **TO REPLACE DSI MODULE**

1. Discontinue power to the dryer
2. Remove the wires connected to the terminal strip at the bottom of the module.
3. Remove the soft orange high voltage wire from the module.
4. Remove the four (4) pal nuts securing the module to the modular mounting bracket.
5. Replace module by reversing process.



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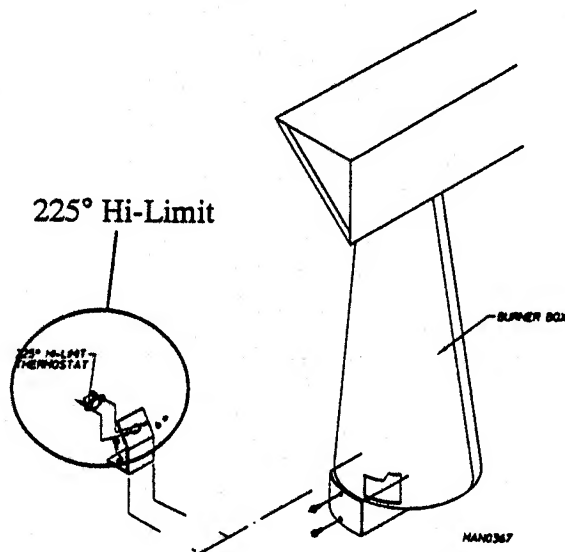
## **C. THERMOSTATS AND TEMPERATURE SENSOR**

### **TO REPLACE HI-LIMIT THERMOSTAT (225°)**

This thermostat is an important safety device serving as an added protection against failure of the air sail switch to open in the event of motor failure or reduced air flow condition.

**IMPORTANT:** Under no circumstances should heat circuit safety devices ever be disabled.

1. Discontinue power to dryer.
2. Disconnect wires from hi-limit thermostat.
3. Loosen the two screws securing hi-limit bracket to the dryer. Slide bracket and remove the bracket and hi-limit from dryer.
4. Remove the two pal nuts securing the hi-limit to the bracket, remove hi-limit.
5. Reverse procedure for installing new thermostat.



## **TO REMOVE THE TEMPERATURE SENSOR OR HIGH HEAT PROTECTOR**

### ***A. HIGH HEAT PROTECTOR***

1. Discontinue power to dryer
2. Open control door on AD-235 remove lint drawer. On AD-230 open lint access panel and remove lint screen.
3. Locate temperature sensor bracket assembly on the side of the basket. Loosen the two phillips head screws. Disconnect the connector.
4. Slide bracket toward the rear of the machine and remove the basket assembly from the dryer.
5. At this point you have access to remove either the high heat protector or the temperature sensor.
6. To remove the high heat protection remove the two (2) screws, washers and nuts holding the high heat protector in place.
7. Remove the high heat protector.
8. Reverse the procedure for installation of new high heat protector.

### ***B. TEMPERATURE SENSOR***

1. Discontinue power to dryer.
2. Open control door on AD-235 remove lint drawer. On AD-230 open lint access panel and remove lint screen.
3. Disconnect sensor bracket harness connector.
4. Loosen the two (2) phillips head screws securing the bracket assembly to the dryer and remove by sliding bracket towards the rear of the dryer.
5. Disassemble sensor probe from the bracket assembly by removing the top push-on fastener securing the probe to the basket.
6. Disconnect the two (2) orange wires from the high heat temperature thermostat remove the four (4) position connector, wires, and probe from the bracket assembly.
7. Install new probe assembly (ADC P/N: 880251) by reversing procedure.

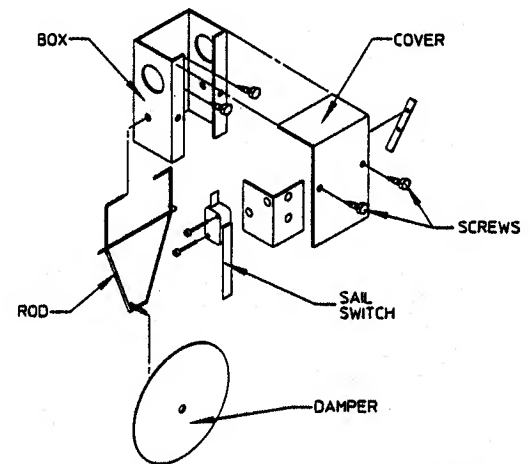
## **D. SAIL SWITCH ASSEMBLY**

The sail switch is a heat circuit safety device which controls the heat circuit only. When the dryer is operating and there is proper air flow the sail switch damper pulls in and closes the sail switch, providing all the other heat-related circuits are functioning properly. If an improper air flow occurs, the sail switch damper will release, and the circuit will open.

**IMPORTANT:** Under no circumstances should heat circuit safety devices ever be disabled.

### **TO REPLACE SAIL SWITCH**

1. Discontinue power to the dryer.
2. Remove the two (2) screws which hold the sail switch box.
3. Disconnect the two (2) wires from the switch.
4. Disassemble sail switch from mounting bracket by removing the two (2) screws securing the switch in place.
5. Reverse this procedure for installing new sail switch.  
Adjust sail switch as described in the next section.



### **TO ADJUST SAIL SWITCH**

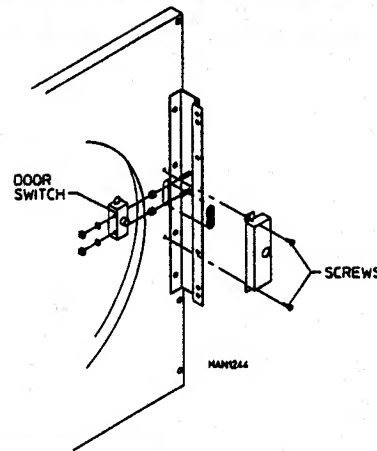
1. Operate the installed dryer normally to verify that the heat system is fully operational.
2. Open the main dryer door.
3. Manually depress the door switch actuator.
4. While continuing to depress the door switch actuator, and with the door open, start the dryer.
5. If the heat system is not activated in 15 seconds, the sail switch is properly adjusted.
6. If the heat system is activated, the sail switch is improperly adjusted and must be readjusted by bending the actuator arm of the sail switch toward the front of the dryer. If the actuator arm is bent too far toward the front of the dryer, the dryer may not have heat when needed. After any adjustments of the sail switch, the above procedure must be repeated to verify proper operation.

**CAUTION:** Do not disable this switch by taping or screwing sail switch damper closed.  
Personal injury or fire could result.

## **E. FRONT PANEL AND MAIN DOOR ASSEMBLIES**

### **TO REPLACE MAIN DOOR SWITCH**

1. Discontinue power to dryer.
2. Open main door.
3. Remove the two (2) phillips head screws holding the main door switch in place.
4. Remove door switch bracket and disconnect wiring from switch(es).



**NOTE:** Identify location of each wire for correct reinstallation

5. Disassemble door switch bracket by removing the two (2) screws holding the door switch in place and assemble onto new door switch.
6. Reverse this procedure for installing new door switch.

**NOTE:** When reconnecting wires to door switch, be sure wiring sequence is correct.

**IMPORTANT:** Under no circumstances should the door switch be disabled.

### **TO REPLACE MAIN DOOR ASSEMBLY**

1. Remove screws (4) holding main door to main door hinge.
2. Reverse this procedure for installing new main door assembly.

### **TO INSTALL NEW MAIN DOOR GLASS**

1. Remove main door assembly from dryer (follow main door removal procedure).
2. Lay main door on a flat surface with front of door face down.
3. Remove glass and clean all old sealant off main door. This area must be completely cleaned for correct bonding.
4. Apply a narrow bead of silicone (ADC P/N: 170730) all around main door area where glass will rest.
5. Install glass on to door/adhesive and slightly press glass in place.

**IMPORTANT:** Do not press hard or silicone thickness between the glass and door will be reduced resulting in poor bonding.

6. The door assembly should now be put in an area where it will not be disturbed for at least 24 hours. Depending on the conditions, the curing time of the adhesive is 24 to 36 hours.
7. After 24 hour curing period, install main door on dryer by reversing step 1.

### **TO REPLACE FRONT PANEL**

1. Discontinue power to dryer.
2. Follow procedure for removal of main door assembly.
3. Open control door (if replacing top panel).
4. Open lint door (if replacing bottom panel).
5. Remove the screws securing the front panel to the dryer.
6. Disconnect door switch wires from the connector.
7. Gently remove front panel assembly from dryer.

**IMPORTANT:** When removing front panel assembly be careful not to damage switch wires disconnected in step # 6.

8. Reverse this procedure for installing new front panel.

### **TO REPLACE MAIN DOOR HINGE**

1. Discontinue power to dryer.
2. Follow procedure for removal of main door assembly.
3. Follow procedure for removal of front panel assembly.
4. Disassemble hinge from front panel by removing the nuts located on the back side of the front panel, which hold the hinge to the front panel.

**IMPORTANT:** When removing hinge assembly from front panel be careful you do not damage main door switch

5. Remove main door switch assembly.
6. Re-assemble by reversing removal procedure.

**NOTE:** When connecting wires to door switch, be sure wiring sequence is correct.

### **TO REPLACE THE NYLON CATCH**

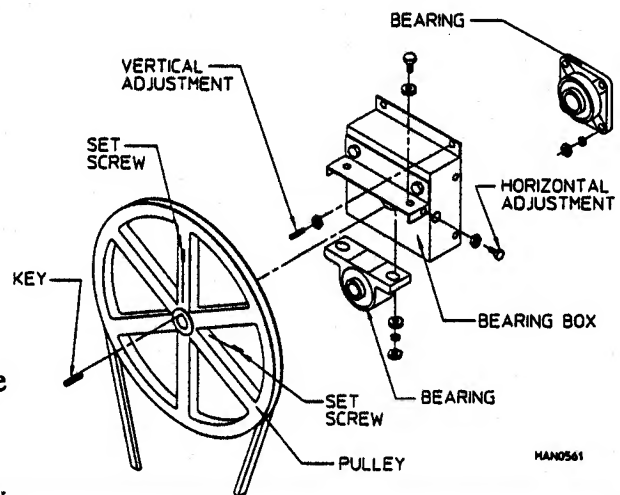
1. Open main door.
2. Drill out the (2) pop rivets holding nylon catch to front panel using #21 (.1590) drill bit.
3. Using two (2) pop rivets (part number 154215) install nylon catch (part number 170330) to front panel.

## **F. TUMBLER AND BEARING ASSEMBLY**

(Remove backguard to access assembly)

### **TO REPLACE TUMBLER PULLEY**

1. Disconnect power to dryer.
2. Remove backguard.
3. Loosen v-belts, then rotate pulley and roll v-belts out of grooves.
4. Loosen two (2) set screws on the pulley and pull the pulley off the shaft.
5. Reverse procedure for installing new tumbler pulley.



**NOTE:** Check belt alignment before operating dryer.

### **TO REPLACE THE REAR TUMBLER BEARING**

1. Disconnect power to dryer
2. Remove tumbler pulley (follow tumbler pulley removal procedure).
3. Remove the four (4) bolts securing the bearing box to the back of the dryer.
4. Loosen screws securing bearing to shaft.
5. Pull bearing box and bearing off of shaft.

**NOTE:** If any rust has developed, use an emery cloth to polish the shaft.

6. Remove bolts securing bearing to bearing box and remove tumbler bearing.
7. Reverse procedure for installing new tumbler bearing.

**NOTE:** Check alignment of pulleys before operating dryer.

### **TO REPLACE THE FRONT TUMBLER BEARING**

1. Discontinue power to dryer
2. Remove tumbler pulley and bearing box (follow "TO REPLACE THE REAR TUMBLER BEARING" steps 1 through 4).

**NOTE:** Check tension of belts and alignment of tumbler before operating dryer.

3. Loosen set screws on front tumbler bearing.
4. Using a wheel puller gently push the tumbler shaft towards the front through the front tumbler bearing.

**NOTE:** An alternate method would be to place a block of wood on the end of the tumbler shaft and strike it with a heavy hammer. To prevent damage to the shaft the wheel puller method is preferred.

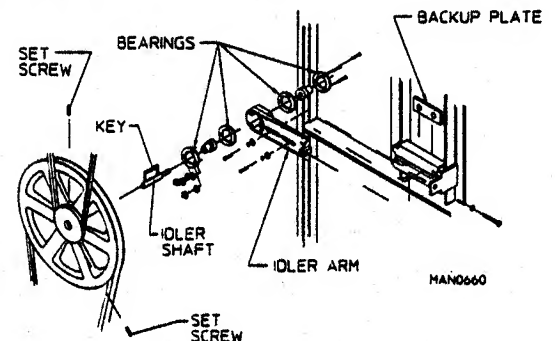
5. Remove the four (4) nuts securing the bearing to the dryer back and remove the bearing.
6. Reverse procedure for installing new tumbler bearing.
7. Replace backguard.

## **G. IDLER AND BEARING ASSEMBLY**

(Remove backguard to access assembly)

### **TO REPLACE IDLER PULLEY**

1. Remove backguard.
2. Loosen v-belts, then rotate pulley and roll v-belts out of grooves.
3. Loosen the two (2) set screws on the pulley and pull off the shaft.
4. Reverse procedure for installing new idler pulley.



**NOTE:** Check tension and alignment of belts before operating dryer.

## **TO REPLACE IDLER BEARING**

**NOTE:** Idler shaft is pressed onto the bearing. If this is not done properly component failure could result. ADC recommends that the whole idler assembly be replaced (ADC P/N: 801010).

1. Remove idler pulley (follow "TO REPLACE IDLER PULLEY")
2. Remove idler arm.
  - A. Remove two (2) bolts securing idler arm to the idler backup plate.
  - B. Remove idler arm assembly.
  - C. Loosen set screws on both the front and rear bearing and remove the idler shaft.
  - D. Remove 3 bolts securing the bearing to the idler arm and remove bearings.
3. Reverse procedure for installing new idler bearings.

**NOTE:** Check tension and alignment of belts before operating dryer.

## **H. DRIVE PULLEY**

(Remove backguard to access assembly)

1. Remove backguard.
2. Loosen v-belts then rotate pulley and roll v-belts out of grooves.
3. Loosen set screws and pull motor pulley out.

**NOTE:** If rust has developed on the shaft use an emery cloth to polish the shaft.

4. Reverse procedure for installing new drive pulley.

**NOTE:** Check tension and alignment of belts before operating dryer.

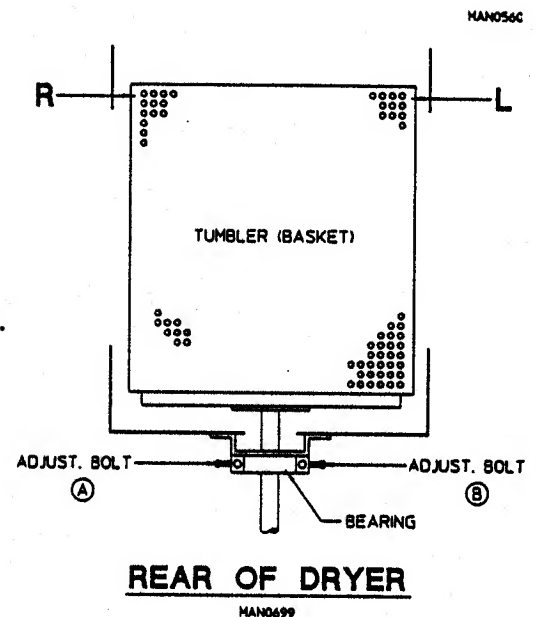
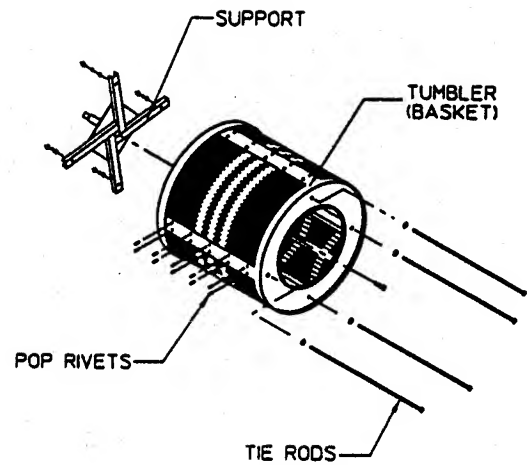
## **I. TUMBLER (BASKET)**

### **TUMBLER ALIGNMENT (VERTICAL)**

1. Discontinue power to dryer.
2. Remove backguard.



3. Loosen the four (4) hex head bolts on the sides of the bearing box (2 on each side).
4. Back off jam nuts on the two (2) allen head adjustment screws.
5. Turn the screws clockwise evenly to raise the tumbler or counterclockwise evenly to lower the tumbler.
6. Rotate the tumbler from the front and check alignment with the main door opening.
7. Leave a large gap from the inside ring on the top of the front panel opening to the tumbler, and a smaller gap on the bottom to compensate for the weight of the clothes drying.
8. Tighten the four (4) hex head bolts on the sides of the bearing box, and the two (2) allen head adjustment screws.
9. Replace backguard.
10. Reconnect power to dryer.



### **TUMBLER ALIGNMENT (LATERAL)**

1. Discontinue power to the dryer.
2. Remove backguard.
3. Loosen the two (2) hex head bolts, (one turn is enough), that holds the pillow block bearing to the bearing box.
4. Back off the two (2) jam nuts on the side adjustment bolts. Now rotate the tumbler from the front of the dryer, checking the space between the tumbler and the front panel. This should be equal on the left hand and right hand side.

5. Lateral adjustment (viewing from the rear)

A. Loosening (by turning counterclockwise) the left hand adjustment bolt and tightening (by turning clockwise) the right hand adjustment bolt will shift the basket to the right.

B. Loosening (by turning counterclockwise) the right hand adjustment bolt and tightening (by turning clockwise) the left hand adjustment bolt will shift the basket to the left.

6. Tighten and secure both adjustment bolts and jam nuts.

7. Tighten the bearing box bolts.

8. Replace backguard and re-establish power to the dryer.

**TO REPLACE THE TUMBLER AND/OR TUMBLER SUPPORT**

1. Remove tumbler pulley and bearing box (follow "TO REPLACE THE REAR TUMBLER BEARING" steps 1 through 4).

2. Remove front panel assembly (follow "TO REPLACE FRONT PANEL ASSEMBLY").

3. Loosen set screws on front tumbler bearing.

4. Using a wheel puller gently push the tumbler shaft towards the front through the front tumbler bearing.

**NOTE:** An alternate method would be to place a block of wood on the end of the tumbler shaft and strike it with a heavy hammer. To prevent damage to the shaft, the wheel puller method is preferred.

5. Remove the tumbler and support through the front of the dryer.

A. Remove the bolt in the center of the tumbler back wall.

B. Loosen and remove the nuts and washers from the tumbler tie rods. Remove the rods.

C. Replace either tumbler or tumbler support by reversing the procedure.

6. Reassemble components into dryer by reversing steps 1 through 4.

7. Check tumbler lateral and vertical alignment. Also, check belt tension and alignment.

**NOTE:** Check tension of belts and alignment of tumbler before operating dryer.

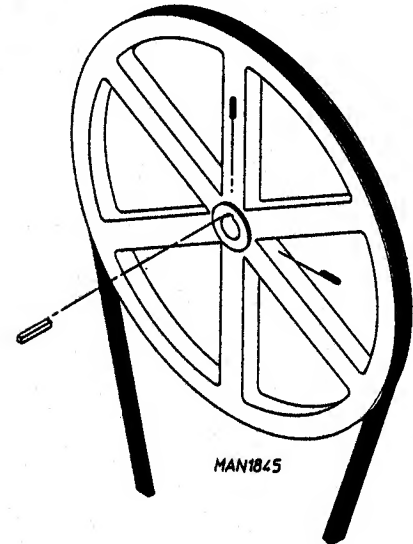
8. Replace backguard and re-establish power to dryer.

## **J. V-BELTS (REFER TO ILLUSTRATIONS IN SECTIONS I, J, K)**

V-Belts should have proper tension. If too loose, they will slip, if too tight excessive wear on the bearing will result. If the pulleys are not properly aligned, excessive belt wear will result. Proper belt tension will allow 1/2" displacement under normal thumb pressure at mid span of the belt.

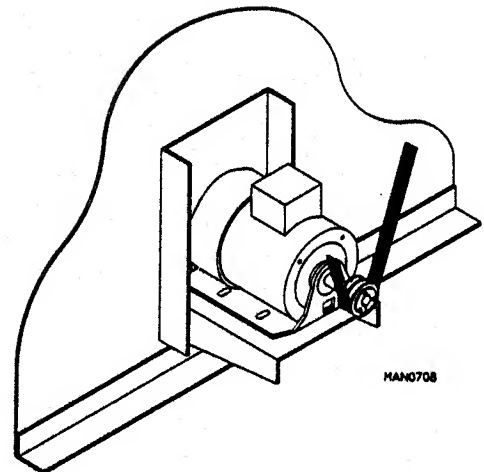
### **V-BELT TENSION ADJUSTMENT-TUMBLER TO IDLER**

1. Loosen two (2) bolts connecting to back-up plate.
2. Back off jam nut on the adjustment bolt.
3. Tighten belts by turning adjustment bolt clockwise.  
(turn counterclockwise to loosen belts)
4. Tighten both bolts connecting to back-up plate.
5. Check vertical plane of idler pulley for parallel alignment with tumbler pulley.
6. If realignment is required, loosen tumbler pulley and move tumbler pulley to proper position
7. Re-tighten jam nut.



### **V-BELT TENSION ALIGNMENT - MOTOR TO IDLER**

1. Loosen two (2) bolts connecting idler arm to back-up plate.
2. Back-off on jam nut(s) on the adjustment bolt.
3. Loosen/tighten adjustment bolt to relax/increase belt tension.
4. Tighten adjustment bolt jam nut(s).
5. Tighten the two (2) bolts loosened in step 1.



### **TO REPLACE V-BELTS**

1. Loosen tension on V-Belts, so that they can easily be rolled off pulleys.
2. Replace V-Belts.
3. Re-tighten V-Belts and adjust tension alignment per previous instructions.

## **K. MOTOR**

### **TO REPLACE MOTOR**

1. Discontinue power to dryer.
2. Remove drive belt.
3. Disconnect wiring harness from motor.

**IMPORTANT:** If top pocket is being replaced, duct work on the side of the motor mount must be removed.

4. Remove nuts and washers holding the motor mount to the rear of the dryer and pull motor mount away.
5. Remove the two (2) left hand nuts on the motor shaft retaining the impellor. Work the impellor free from the motor shaft by means of a puller to prevent damage to the motor shaft.
6. Remove the bolts holding the motor and install on new motor.
7. Remove pulley from old motor and install on new motor.
8. Align motor with impellor face in place with the motor mount at no less than 3/16" clearance.
9. Reassemble in the reverse of the above procedure.

## **L. IMPELLOR**

**NOTE:** Follow steps 1 through 5 and 8 in "Section V, Part N."

## **M. LINT SCREEN AD-230**

### **TO REPLACE LINT SCREEN AD-230**

1. Open control door and right access door
2. Slide lint screen out 3/4 of the way reach through the access door and flip the hinge welded to the back side of the screen up.
3. Slide lint screen out along the lint coop track.
4. Reverse procedure for installing new lint screen.
5. Close lint door.

## **N. LINT SCREEN AD-235**

### **TO REPLACE LINT SCREEN AD-235**

1. Open control door
2. Remove lint drawer assembly
3. Replace in reverse procedure.

# SECTION VI

## TROUBLE SHOOTING

The information provided will help isolate the most probable components associated with the difficulty described. The experienced technician realizes, however, that a loose connection or broken or shorted wire may be at fault where electrical components are concerned.... not necessarily the suspect component itself.

**Electrical parts should always be checked for failure before returned to the factory.**

The information provided should not be construed as a device for use by an untrained person in making repairs. Only properly licensed technicians should service the equipment.

**Observe all safety precautions displaced on the equipment or specified in this manual while making repairs.**

### A. PHASE 5 COIN SYSTEM DIAGNOSTICS

All major circuits, including door, microprocessor temperature sensor, heat and motor circuits are monitored. The Phase 5 coin microprocessor controller will inform the user via the L.E.D. display of certain failure codes along with indicators both in the L.E.D. display at the outputs of each relay and door switch circuit to easily identify failures.

#### DIAGNOSTICS (L.E.D. DISPLAY) FAILURE CODES

1. "dOOr" - indicates door switch circuit is open.
  - a. Keyboard entry was made while main door is open, or
  - b. There is a fault in the door switch circuit (external of the microprocessor controller)
2. "dSFL" - indicates a fault in the microprocessor temperature sensor circuit. If a fault is detected in the microprocessor heat sensor circuit, the display will read "dSFL." and the tone (buzzer) will sound for approximately 5 seconds every 30 seconds until...
  - a. the problem is corrected, or
  - b. power to the dryer is disconnected and the problem is then corrected.

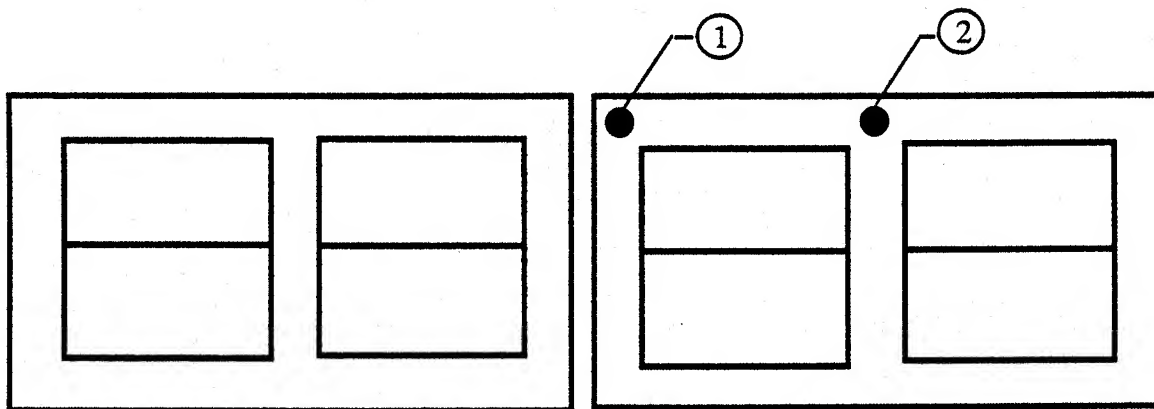
**IMPORTANT:** The Phase 5 coin microprocessor controller has its own internal heat sensing circuit fuse protection located on the back side of the controller. If a "dSFL" condition occurs, check to see if this fuse has blown. If it has, **DO NOT** replace the entire microprocessor controller; replace the fuse and do so with a 1/8-Amp (Slo Blo) fuse **ONLY**.

**NOTE:** Once the microprocessor controller detects a problem in the heat circuit, it updates every 30 seconds. If the problem was a loose connection in this circuit which corrected itself, the "dSFL" condition would be cancelled.

3. "SEFL" -indicates rotational sensor circuit failure meaning that there is a fault somewhere in the basket (tumbler) rotation detection circuit, or the Phase 5 coin microprocessor controller program related to this circuit (PL01) is set incorrectly in the active mode (SEn) where the dryer is not equipped with the optional rotational sensor and should be set in the non-active mode (nSEn).
4. "Hot" -indicates a possible overheating condition. The Phase 5 coin microprocessor controller monitors the temperature in the dryer at all times. If the microprocessor controller detects that the temperature in the dryer has exceeded 220° F (104°C), it will disable all outputs (shut the dryer down), the tone (bUZ) will sound for approximately 5 seconds, and the L.E.D. temperature sensor has dropped to 220° F or lower and the microprocessor controller is manually reset by closing and opening the program switch (PS) on the back side of the controller.

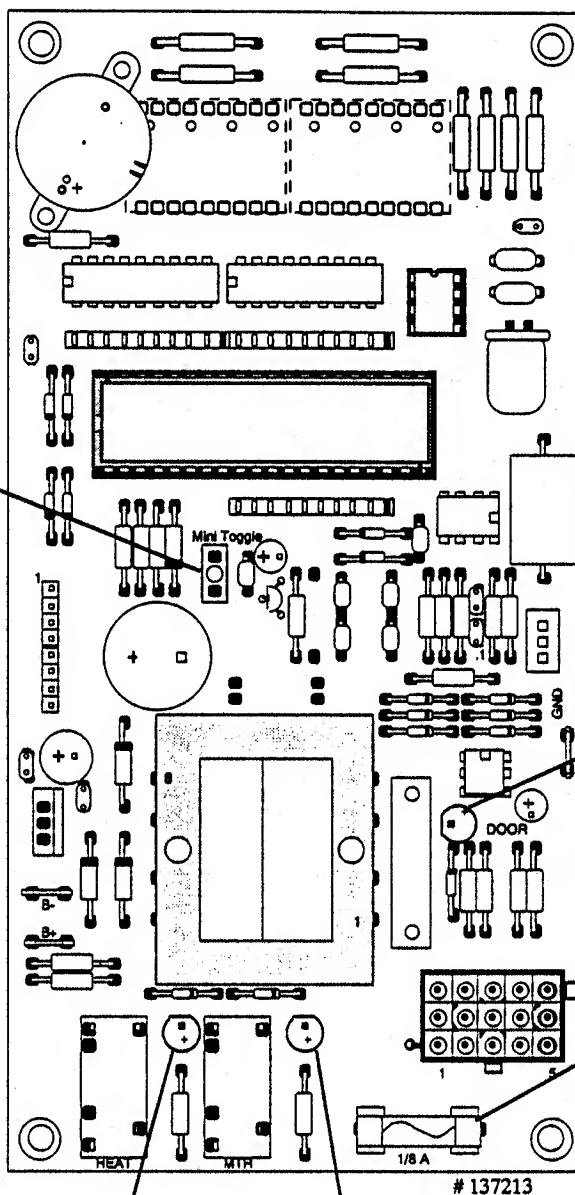
### **L.E.D. DISPLAY INDICATORS**

The L.E.D. indicator dots located at the top portion of the L.E.D. display (as shown in the illustration below) indicate the Phase 5 coin microprocessor controller output functions while in a cycle is in progress. These dots do not necessarily mean that the outputs are functioning. They are only indicating that the function (output) should be active (on).



1. Heat Circuit Indicator - indicator dot is on whenever the Phase 5 coin microprocessor controller is calling for the heating circuit to be active (ON).
2. Motor Circuit Indicator - indicator dot is on whenever a cycle is in progress.

**Program Switch  
(PS)**



**"Door" Input L.E.D.**

**"dSFL" Fuse 1/8-Amp  
(Slo Blo) ONLY**

**"Heat" Output L.E.D.**

**"Motor" Output L.E.D.**



## MICROPROCESSOR CONTROLLER RELAY OUTPUT L.E.D. INDICATORS

There are three (3) L.E.D. indicators (red lights) located at the lower backside area of the controller are identified/labeled "DOOR," "MTR." and "HEAT" (as shown in the illustration on the next page). These L.E.D.'s indicate that the outputs of the Phase 5 coin microprocessor controller or, in the case of the door switch, the input is functioning.

1. **"DOOR"** L.E.D. indicator should be on all the time (even if the dryer is not running) unless the main door is open or there is a problem (open circuit) in the main door switch circuit.

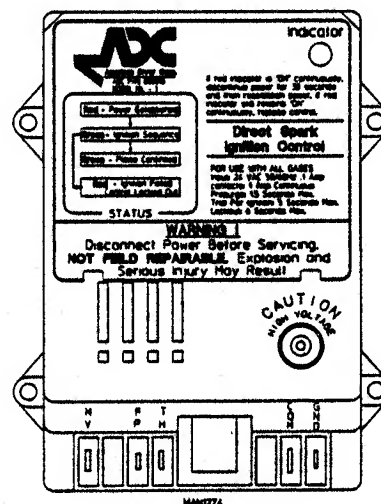
**NOTE:** If the dryer is started (the L.E.D. display indicator dots are on) and there are no outputs (heat and/or motor output L.E.D.'s are off) and the "dOOr" input L.E.D. is on, the fault is in the Phase 5 microprocessor controller itself. If the failure was elsewhere (i.e., was attempted. If the L.E.D. display indicators are on and the door L.E.D. input and motor/heat output L.E.D.'s are on the motor and/or heat is not active (on), then the problem is not the door switch circuit or the Phase 5 coin microprocessor controller; the problem is elsewhere in the dryer.

2. **"MOTOR"** Output L.E.D. Indicator - if the dryer is started and the motor is not operating, yet both the microprocessor controller display motor indicator dot and the "dOOr" input L.E.D. indicator are on, but the motor output L.E.D. indicator is off, then the fault is in the Phase 5 coin microprocessor controller itself. If the motor is not operating and the MOTOR output indicator is on, then the problem is elsewhere (i.e., external of the microprocessor controller).
3. **"HEAT"** Output L.E.D. Indicator - If the dryer is started and there is no "heat." Yet the microprocessor controller display heat circuit indicator dot is on, but the output L.E.D. indicator is off, then the fault is in the Phase 5 coin microprocessor controller itself. If both the display heat indicator dot and the heat output L.E.D. indicator are on, then the problem is elsewhere (i.e., external of the microprocessor controller).

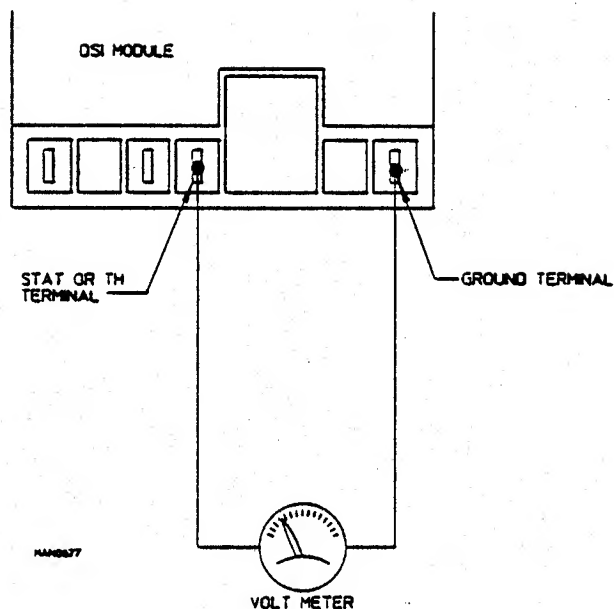
## B. NO HEAT CONDITION (Gas Models)

The following procedure must be performed with the microprocessor controller display in the normal operating mode, and the heat indicator dot on, and the L.E.D. heat output light is on. Voltage is 24 VAC unless otherwise specified.

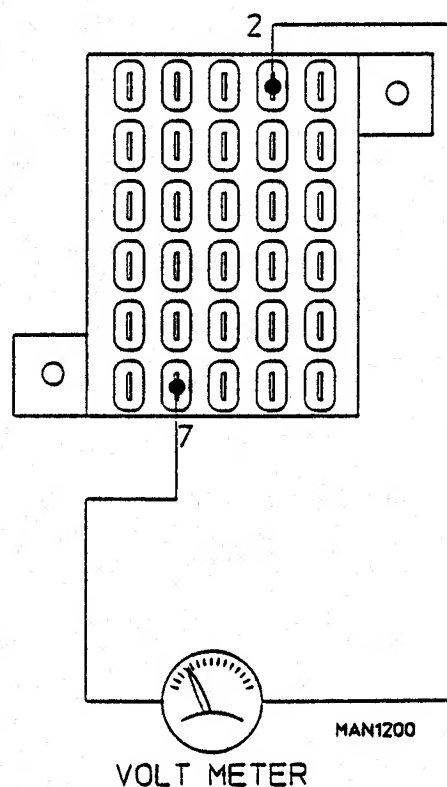
1. Check to see if DSI module fault indicator L.E.D. is on or flashing. If yes, refer to Trouble Shooting Booklet.  
(P/N: 450142)



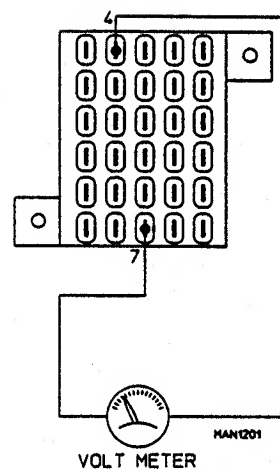
2. Check for voltage (approx. 25VAC) across DSI module terminals "STAT" or "TH" and "GND." If voltage is evident, refer to "DSI" trouble Shooting Booklet. (P/N: 450142) If no voltage continue on with step # 3.



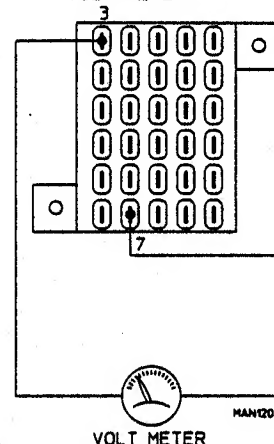
3. Check for voltage between TB#2 and TB#7. If voltage is evident, problem is break in wire or termination between TB#2, TB#7 and the DSI module "STAT", "TH", or "Gnd" terminal. If no voltage continue on with step #4.



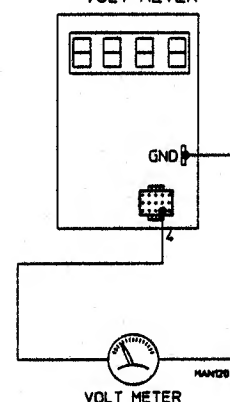
4. Check for voltage across TB#4 and TB#7. If voltage is evident, problem is defective burner hi-limit switch P/N: 130103 or the sail switch\* P/N: 122200, or the harness connecting these two devices to the terminal block #4 and #2). If no voltage continue on with step # 5



5. Check for voltage across TB#3 and TB#7. If voltage is evident, problem is defective basket hi-limit switch (P/N: 130103 or the harness connecting this device to the terminal block #3 and #4). If no voltage continue on with step # 6



6. Check for voltage across the computer's 15-pin connector, #4 (orange wire), and the GND. Spade terminal on the computer. If voltage is evident, problem is the orange wire from the computer's 15 pin connector, #4 to the terminal block #3. There is a bad connection on either end or faulty wire. If voltage is evident, problem is faulty computer



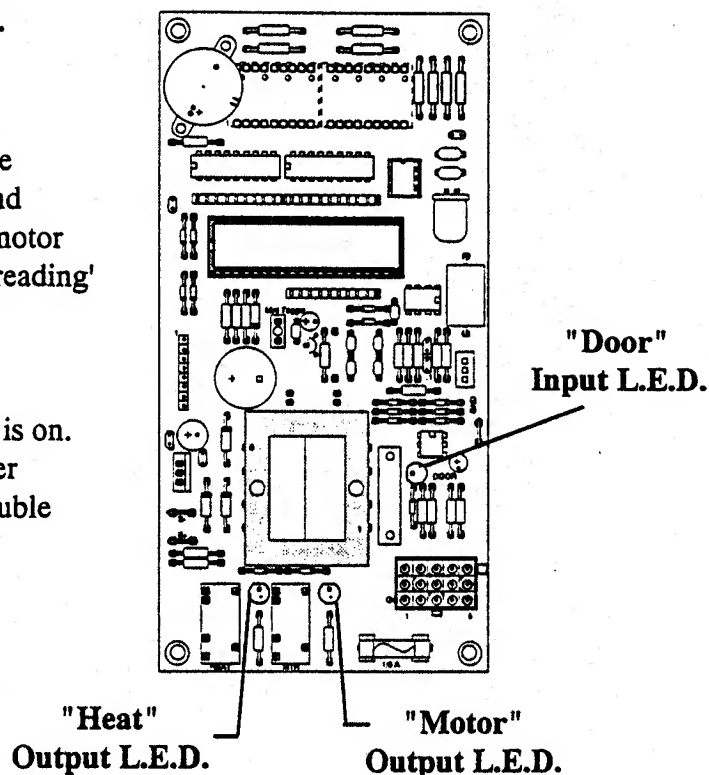
\* Make sure the sail switch damper is closing properly. If so, check to see if it is making contact with the switch. If the sail switch damper is not closing properly check for exhaust restriction, or exhaust damper restriction and / or clogged lint screen.

**NOTE:** For models with a 3-phase motor, check rotation direction of impellor (fan) as noted on label at rear of dryer.

## C. NO START CONDITION

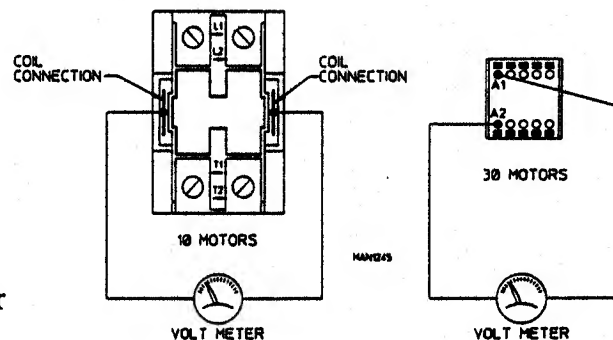
Follow this test procedure, providing that the microprocessor controller is functioning where the display is in the normal operating mode and the motor indicator dot is on, and the L.E.D. motor output light is on. The voltage you should be reading is 24 VAC unless otherwise specified.

1. Check to see if "dOOOr" L.E.D. input light is on. (Located on component side of the computer board.) If is off, refer to "dOOOr" in the trouble shooting section.

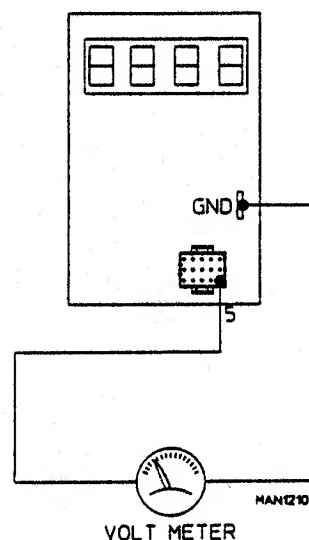


2. Check for voltage across the coil connections of the motor relay. If voltage is evident:

- A. Manually push down on the top of contactor, if motor turns, replace contactor.
- B. If motor doesn't turn, problem is bad wire or the termination from the contactor down to motor or faulty motor.



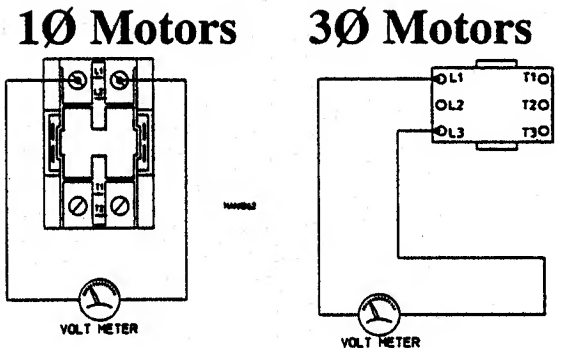
3. Check for voltage across the microprocessor's 15-pin connector #5 (blue wire) and GND spade terminal on the microprocessor. If voltage is evident, problem is bad wire or termination on blue wire from the computer to the contactor coil or the green wire from TB#7 to the opposite end of the contactor coil. If no voltage is evident, problem is faulty computer.



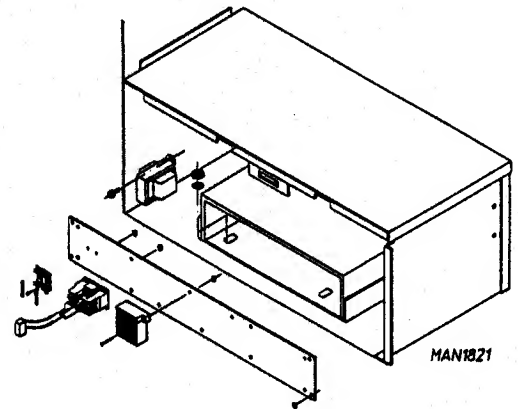
## **D. NO DISPLAY CONDITION**

1. Check power supply. (dryer voltage 110v, 208v, 220v ...)

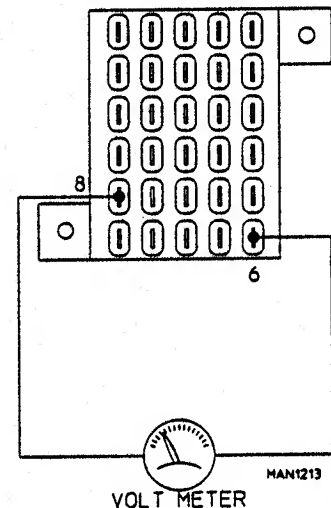
2. Check for voltage across (L1) and (L2) of motor relay. (110v, 208v, 220v ...) For 3 Phase machine, check across (L1) and (L3). If there is no voltage is evident, problem is bad wire(s) or termination from the circuit breaker panel to top of motor contactor. If there is voltage continue with step # 3.



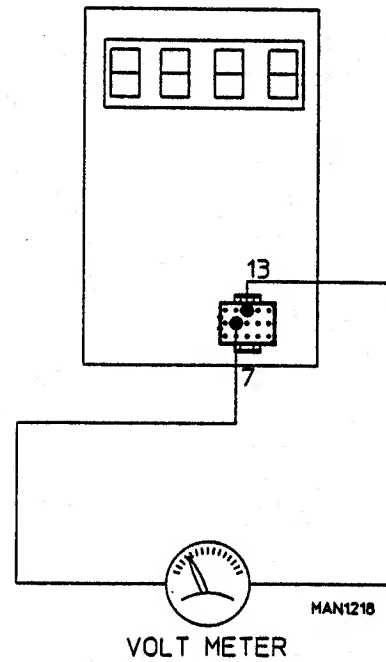
3. Check the .5 amp fuse(s) in the control box. If dryer is rated at 110v, 115, or 120v there will only be one fuse. Voltages of 208v, 220v will have two fuses. If blown, replaces with P/N: 136057. If not continue with step # 4.



4. Check voltage across TB#8 and TB#6 (110v, 208v, 220v). If no voltage is evident, problem is bad wire or termination from TB#8 and TB#6 to the L1 and L2 connection on the motor relay. If there is voltage continue with step # 5.



5. Check for voltage across the computer's 15-pin connector #7 and #13 (110v, 208v, 220v). If no voltage is evident, problem is bad wire or termination from the computer's 15-pin connector #7 and #13 to #6 and #8. If voltage is evident, problem is faulty computer.

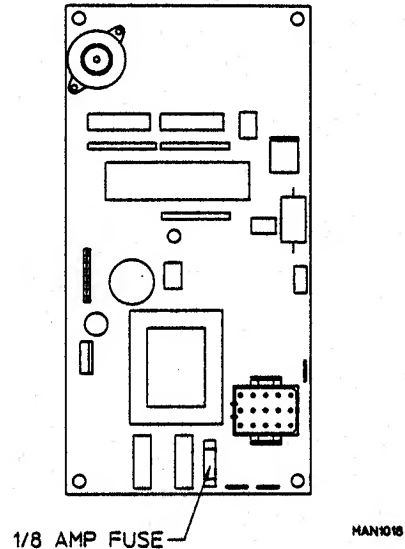


## **E. "dSFL" DISPLAY CONDITION**

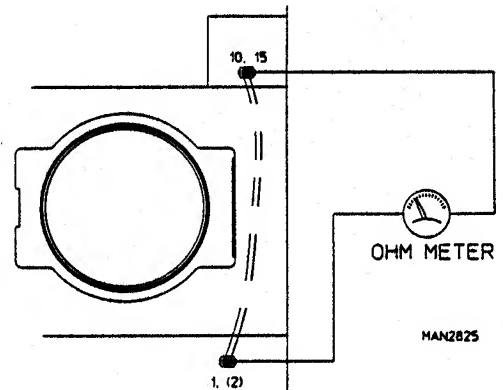
When the display "dSFL" this condition indicates a fault in the microprocessor controllers heat circuit. This circuit includes the microprocessor controller, microprocessor temperature sensor (located in lint compartment) and wires to and from these two (2) points.

1. Check to see if microprocessor controller has 1/8 amp fuse on board, if it does check with ohm meter.  
If no continuity replace with ADC P/N: 136048.  
If fuse repeatedly burns out go to step 4.

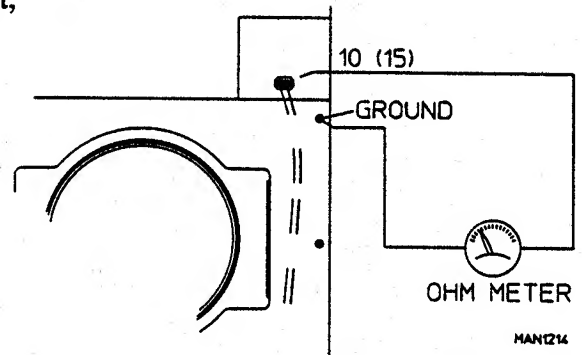
2. Check for loose connection at the microprocessor sensor bracket harness connector (located in lint compartment), and the microprocessor 15 position connector connection at the microprocessor controller.



3. Discontinue power to dryer. Disconnect the microprocessor 15 position connector from microprocessor controller and locate connector holes no. 10 and 15. Disconnect sensor harness from sensor bracket assembly (located in the lint compartment). Check for continuity across each wire from harness connector in lint compartment to appropriate microprocessor 15 position connector hole (10 and 15). If no continuity, problem is break in wire or termination.



4. Check for continuity across each microprocessor sensor wire (microprocessor 15-position connector hole no. 10 and 15) to ground. If Continuity is evident, problem is wire pinched to ground somewhere behind the front panel area.



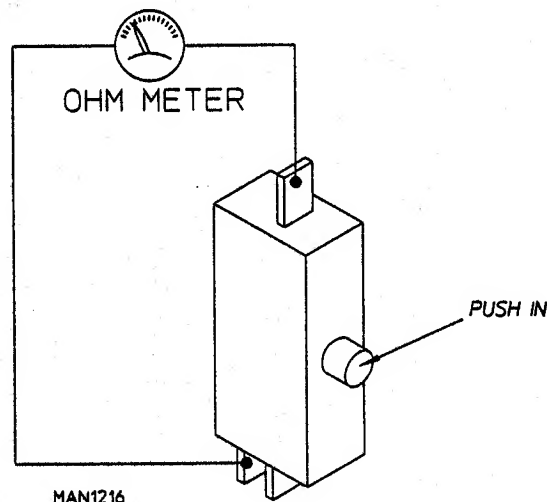
5. If above procedures check out okay, problem is a defective microprocessor temperature sensor.



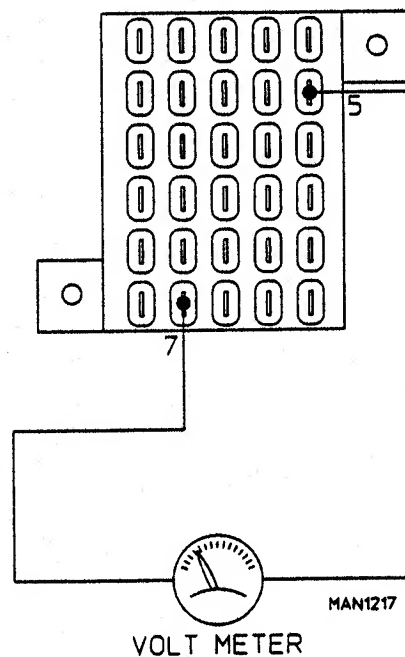
## **F. "dOOr" DISPLAY CONDITION**

When the display reads "dOOr", this indicates that there is a fault (open circuit) somewhere in the microprocessor controller's door switch circuit. Include the door switch, microprocessor controller and the wires to end from these two points. Before following this test procedure, check the component side of the computer to see if L.E.D. input light is on. If on replace computer. Voltage is 24VAC unless otherwise specified.

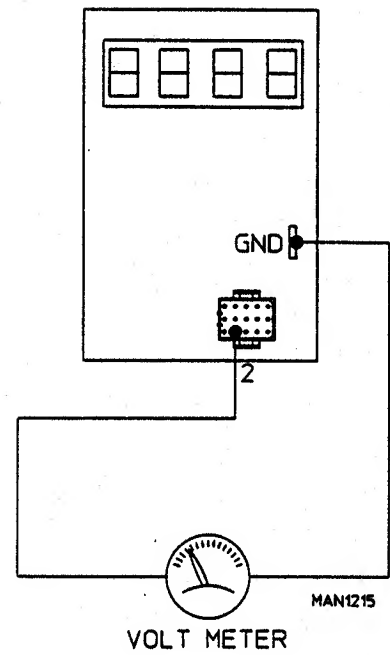
1. Remove door switch assembly from dryer. Check for continuity across the two terminals of the door switch with plunger pushed in. If no continuity, replace the door switch. If continuity is evident, reassemble door switch back on dryer.



2. Make sure main door is closed and the plunger of the door switch is pushed in. Check for voltage across TB #5 and #7. If no voltage is evident, problem could be faulty transformer (P/N: 141403) or bad wire or termination in the door switch harness, from door switch to terminal block.



3. Check for voltage across microprocessor's 15-pin connector #2 (yellow wire), and the spade terminal on the microprocessor marked GND. If no voltage, problem is bad wire or termination in wire from microprocessor connector #2 to TB #5. If voltage, problem is a faulty computer

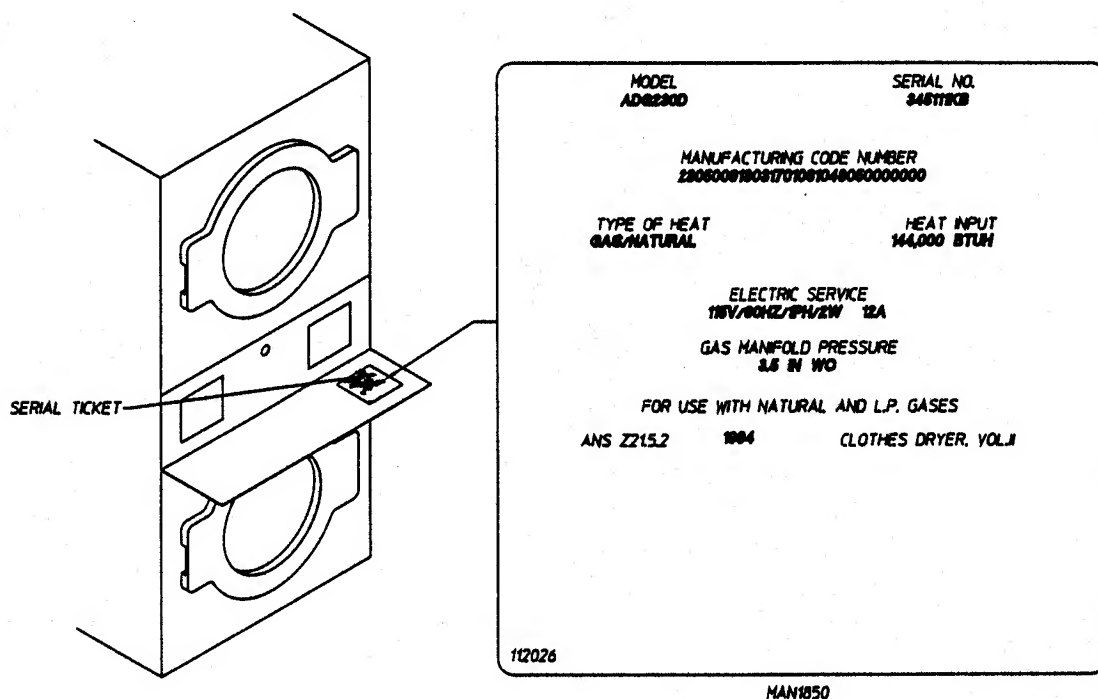


# SECTION VII

## TECHNICAL INFORMATION

### A. DATA LABEL

Contact American Dryer Corporation



When contacting American Dryer Corporation certain information is required to insure proper service/parts information from American Dryer. This information is on the data label located on the control door. When contacting American Dryer please have the model number and serial number handy.

#### DATA LABEL

1. **MODEL NUMBER**— The model number is an ADC number which describes the size of the dryer and the type of heat (gas or steam).
2. **SERIAL NUMBER**— The serial number allows ADC to gather information on your particular dryer.
3. **MANUFACTURING CODE NUMBER**— The manufacturing code number is a number issued by ADC which describes all possible options on your particular model.
4. **TYPE OF HEAT**— Describes the type of heat; gas (natural or L.P.) or steam or electric.
5. **HEAT INPUT**— (For gas dryers) describes the heat input in British thermal units.

6. **ELECTRIC SERVICE**— Describes the electric service for your particular models.
7. **GAS MANIFOLD PRESSURE**— Describe the manifold pressure as taken at the gas valve pressure tap. (see **HOW TO USE A MANOMETER**)

## **B. USING A MANOMETER**

### **HOW TO USE A MANOMETER (ADC P/N: 122804)**

1. With dryer in non-operating mode remove plug on the gas valve pressure tap.
2. Attach plastic tubing to pressure tap. (fitting is supplied with manometer see illustration.)
3. Attach manometer to dryer using magnet.

**NOTE:** Place manometer in a position so that readings can be taken at eye level.

4. Fill manometer as shown in illustration to the zero level.
5. Start dryer. With burner on take a reading.

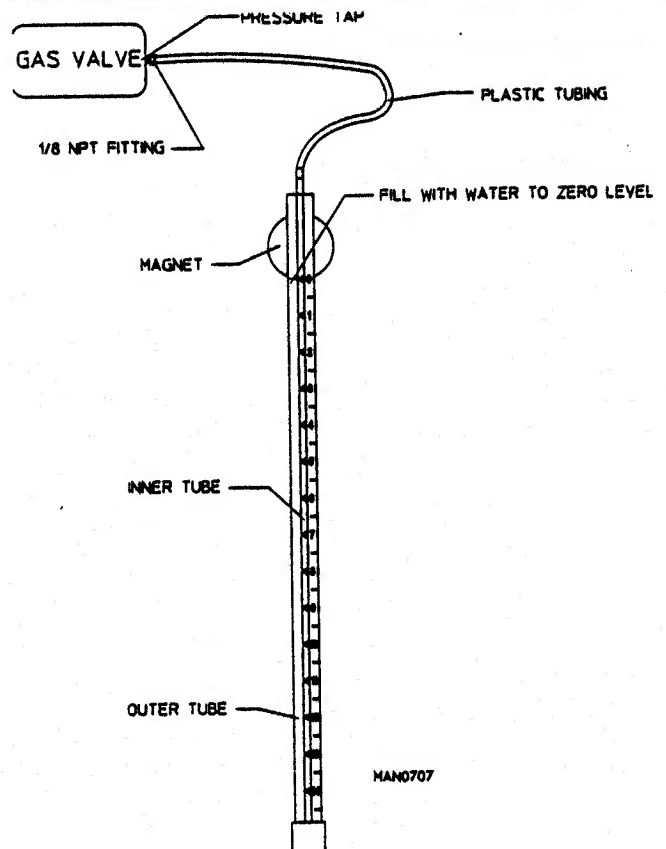
A. Read water level at the inner tube.  
readings should be taken at eye level.

B. Correct readings should be:

NATURAL GAS: 3.5 - 4.0 inches w.c.

L.P. GAS: 11 - 10.5 inches w.c.

6. If water column pressure is incorrect refer to "TO ADJUST GAS PRESSURE"
7. Reverse procedure for removing manometer.



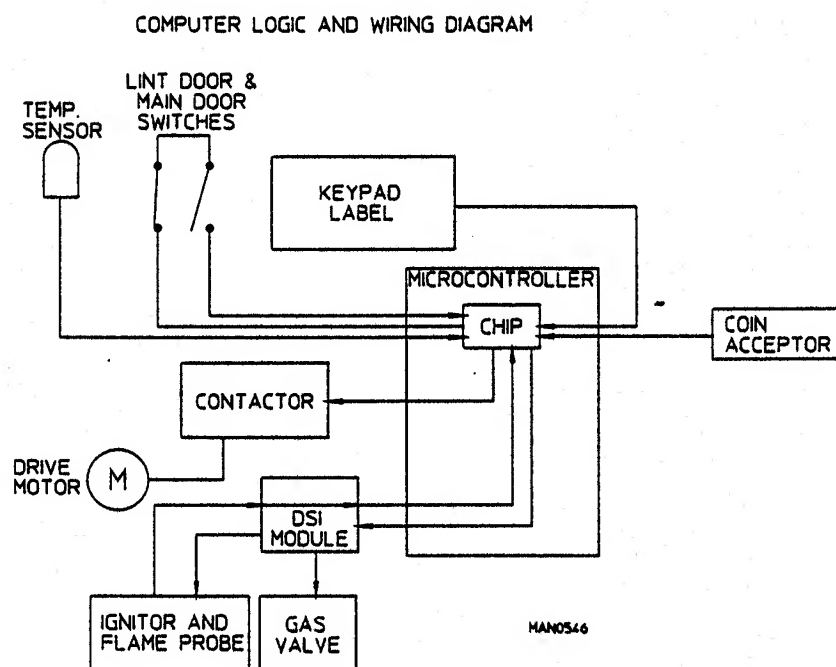
## C. L.E.D. DISPLAY CODES

<b>A</b>	Automatic Cycle (Slope Program Factor)
<b>ACOn</b>	Accumulative Coin
<b>Adrt</b>	Maximum Auto Dryness Time
<b>AFAt</b>	Amount for Additional Time
<b>AGt</b>	Active Anti-Wrinkle Guard Time
<b>AtIn</b>	Accumulative Time
<b>AtSt</b>	Amount Start
<b>AUtO</b>	Automatic Mode ( Patent No. 4,827,627)
<b>b</b>	Automatic Cycle (Heat loss [offset] Factor)
<b>bCLO</b>	Bad Coin Lockout
<b>bCrS</b>	Bad Coin Reset
<b>bUZ</b>	Buzzer (Tone)
<b>CEL</b>	Degree in Celsius
<b>CLCC</b>	Clear Left Coin Count
<b>COIn</b>	Coin Mode
<b>CrCC</b>	Clear Right Coin Count
<b>donE</b>	Drying and Cooling Cycles Complete
	or
	Dryer is in Anti-Wrinkle Cycle
<b>door</b>	Door Circuit is Open
<b>dSFL</b>	Dryer Sensor Circuit Failure
<b>FAr</b>	Degree in Fahrenheit
<b>FILL</b>	No Cycle in Progress
<b>FLS</b>	Flash Display Active
<b>FrEE</b>	Free Dry Mode
<b>GdLY</b>	Anti-WrinkleDelay Time
<b>Gont</b>	Anti-Wrinkle On Time
<b>Grd</b>	Anti-Wrinkle Program Active
<b>HICd</b>	High Cool Down
<b>Hot</b>	Overheating Condition
<b>LCC</b>	Left Coin Count
<b>LCde</b>	Left Coin Denomination
<b>LOCd</b>	Low Cool Down
<b>nbUZ</b>	No Buzzer (Tone)
<b>nFLS</b>	No Flash Display
<b>Ngrd</b>	No Anti-Wrinkle
<b>nSEn</b>	No Rotational Sensor Selected
<b>PdrY</b>	Percent Dry
<b>PL</b>	Program Location
<b>PLOC</b>	Program Location Automatic Review

PPCD	Permanent Press Cool Down
PP	Permanent Press
PUSH	Amount to Start has been Inserted Make Temperature Selection
rCC	Right Coin Count
rCdE	Right Coin Denomination
SEFL	Rotational Sensor Circuit Failure
SEn	Rotational Sensor Selected
tFAS	Time for Amount to Start
tInE	Timed Mode

## D. COMPUTER LOGIC AND WIRING DIAGRAM

1. Operator inserts coin.
2. Operator enters desired selection (s)...
3. Information entered is sent to the Micro-Controller via the keyboard ribbon.
4. The input information is sorted / processed and executed by the Micro-Computer chip.



5. The micro-computer output signal activates the contactors and DSI module which controls the machines functions.

**NOTES:** When contacting American Dryer Corporation with electrical questions, please have on hand the correct wiring diagram number for your particular machine.

This number is located on the top right hand corner of the diagram. It is a six (6) digit number followed by a letter to distinguish the version dates (see illustration).

Your particular model will be different depending on the date of manufacturing and options available.

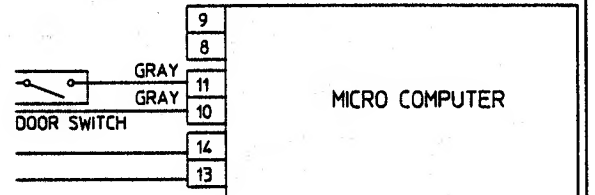
The correct wiring diagram for your machine is folded and placed inside of the computer area.

Diagrams for this book are as follows:  
(including all revisions of the numbers listed below)

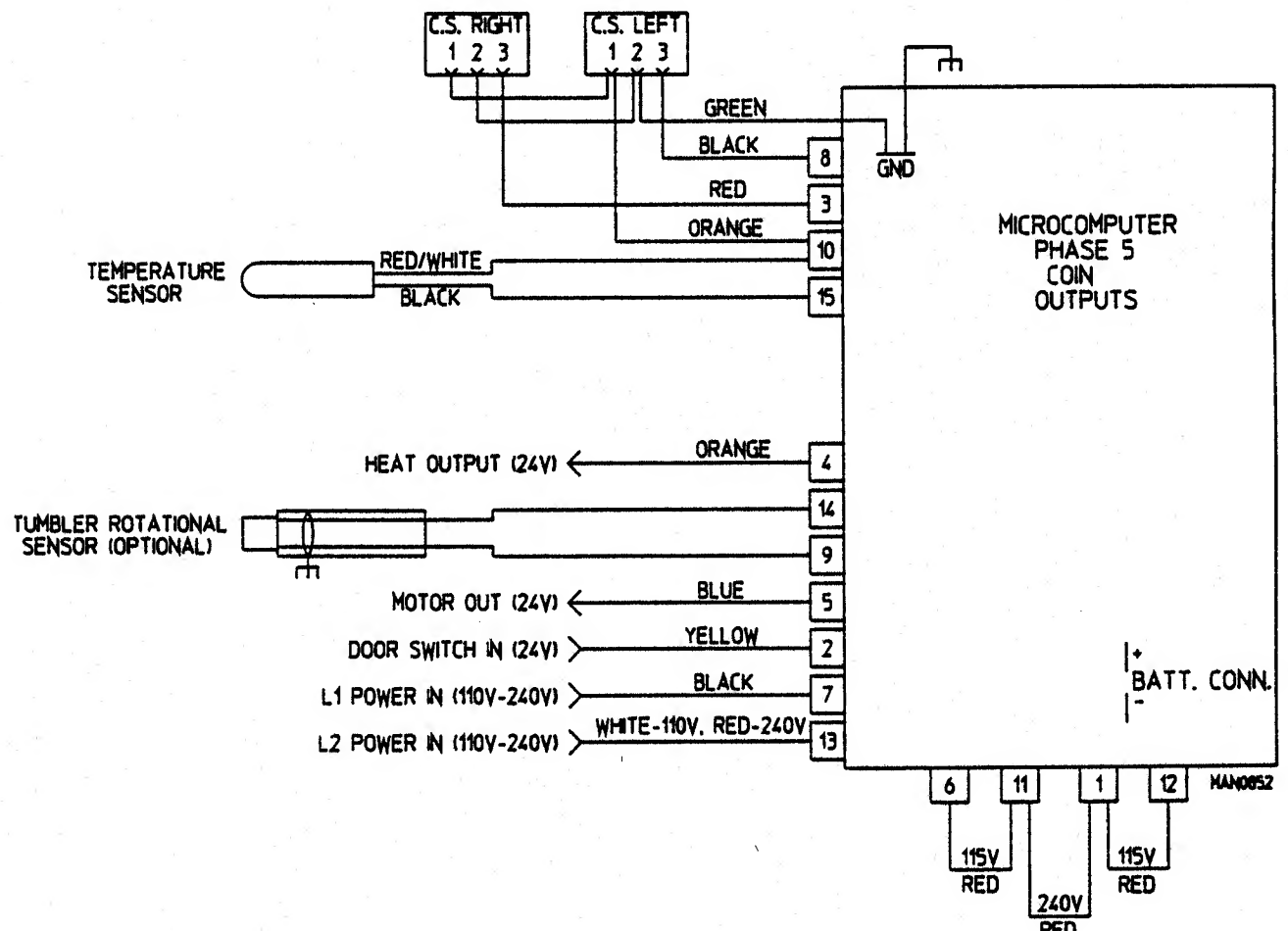
B372611  
B382611

Revision Number

DATE: 11/7/90	P/N: 8622711	8
B	REWired 24v TRANSFORMER	12/90
A	SOLID STATE RELAY	11/90
REV.	DESCRIPTION	DATE
		APPRO BY
		CHK BY



## PHASE 5 COIN CONTROLLER CIRCUITS



**ADC 450304**    **1 - 07/02/96-50**    **2 \* 12/24/96-50**    **3 - 01/07/98-50**  
**4 \* 08/03/98-50**    **5 - 09/02/98-50**    **6 - 04/21/99-100**

